

PART A AND PART B
PERMIT APPLICATION

VOLUME II OF II

PREPARED FOR:

LAIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.

COLFAX, LOUISIANA

LAD 981055791

NOVEMBER 1997

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TABLES

TABLE 1
LIST OF TABLES, FIGURES, APPENDICES, AND ATTACHMENTS
LIDLAW ENVIRONMENTAL SERVICES INCORPORATED
(THERMAL TREATMENT)
COLFAX FACILITY

Item No.	Item Name
Tables	
1	List of Tables, Figures, Appendices, and Attachments
2	Acronyms Used in Permit Application
3	Wells Within Two Miles of Open Burning Site
4	1992 Closure Cost Estimate for the Units, Updated to the Present
5	Closure Schedule
Figures	
1	Facility Layout and Contour Map
2	Aerial Photograph
3	Security, Equipment, and Utility Locations
4	USDA SCS Soils Map
5	Land Use and Water Well Map
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8	Storage Magazine - Fence Elevations and Sections
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4	Risk Assessment Protocol Correspondence
5	Soil Monitoring Plan
6	Water Well Analytical Data

TABLE 2
ACRONYMS USED IN PERMIT APPLICATION
LIDLAW ENVIRONMENTAL SERVICES INCORPORATED
(THERMAL TREATMENT)
COLFAX FACILITY

Acronym	Full Name
ATF	U.S. Bureau of Alcohol, Tobacco and Firearms
FEMA	Federal Emergency Management Agency
DOT	U.S. Department of Transportation
EPA	Environmental Protection Agency
LAC	Louisiana Administrative Code
LDEQ	Louisiana Department of Environmental Quality
LDOTD	Louisiana Department of Transportation and Development
LESTT	Laidlaw Environmental Services - Thermal Treatment
USGS	U.S. Geological Survey
WAP	Waste Analysis Plan
OJT	On-The-Job Training

TABLE 3
WELLS WITHIN 2 MILES OF OPEN BURNING SITE
LAIDLAW ENVIRONMENTAL SERVICES INCORPORATED
(THERMAL TREATMENT)
COLFAX FACILITY

Well Number	Owner	Use	Casing Diameter (inches)	Total Depth (feet)	Aquifer	Pumping Rate (Gallon per Minute)	Date	Water Level	Date	Water Quality Analysis Available?
62	Paul Goza	Irrigation	6	25	Red River Alluvial	Not available		15	07/01/39	See Attachment 8
63	E.A. Ethridge	Domestic	6	35	Catahoula	Not available		30	07/01/39	None available
98	Paul A. Duke	Domestic	2	225	Catahoula	Not available		Not available		See Attachment 8
233	Allen Wampler	Domestic	2	90	Catahoula	Not available		Not available		See Attachment 8
234	International Paper	Domestic	2	260	Catahoula	Not available		Not available		See Attachment 8
247	L.H. Dubois	Domestic	2	100	Catahoula	Not available		Not available		See Attachment 8
260	Allen Wampler	Domestic	2	70	Catahoula	Not available		Not available		See Attachment 8
291	Louis V. Davis	Rig Supply	3	60	Red River Alluvial	20	1965	5	05/29/71	See Attachment 8
321	John M. Jones	Domestic	1.25	47	Montgomery	Not available		36	1956	See Attachment 8
392	West Grant Water No. 2	Public	6	45	Montgomery	150	05/19/76	7	10/04/73	See Attachment 8
393	West Grant Water No. 3	Public	6	75	Catahoula	150	05/19/76	33	10/03/73	See Attachment 8

Notes: (1) Identification of wells nearby, physical details, use, and screened aquifer from computer printout by LDOTD.
(2) LDOTD information may have errors due to incorrect registration information submitted or change in ownership since registration.
(3) Water level information, pumping rates, and water quality information from USGS.

TABLE 4

1992
CLOSURE COST ESTIMATE FOR THE UNITS
UPDATED TO PRESENT

REMOVAL OF WASTE INVENTORY

-	Transfer stored wastes to preparation bldg	
	Labor (10 magazines x 24 mh/magazine x \$17.28/mh)	\$4,147
-	Waste preparation	
	Labor (120 mh @ \$17.28/mh)	\$2,074
-	Treatment of waste inventory	
	Labor (180 mh @ \$17.28/mh)	<u>\$3,110</u>
	Subtotal	\$9,331

DECONTAMINATION OF STORAGE MAGAZINES (10)

-	Wood removal/treatment/disposal (assume 2 cy ash/magazine)	
	Labor (10 mags x 16 mh/mag x \$17.28/mh)	\$2,764
	Ash transportation/disposal (10 mags x 2 cy/mag x \$165/cy)	\$3,300
-	Pressure wash/triple rinse	
	Labor (10 mags x 8 mh/mag x \$17.28/mh)	\$1,382
	Washwater disposal (10 mags x 150 gall/mag) (1,500 gall x \$1.50/gall)	\$2,250
	*Washwater transportation (1600 mi round trip haul) (1600 mi x \$3.65/mi)	<u>\$5,840</u>
	Subtotal	\$15,536

*Washwaters bulked for shipment.

DECONTAMINATION OF PREPARATION BUILDING

- Equipment cleaning/removal Labor (24 mh X \$17.28/mh)	\$415
- Cleaning building floors/walls Labor (32 mh X \$17.28/mh)	\$553
Washwater disposal (500 gall) (400 gall x \$1.50/gall)	<u>\$600</u>
Washwater transportation*	
Subtotal	\$1,568

ASH, SPILL RESIDUE, BURNERS AND BURN PADS DISPOSAL

- Removal/containerization (assume 160 cy) Labor (160 mh x \$17.28/mh)	\$2,764
- Disposal at a permitted hazardous waste landfill (160 cy) Transportation (700 mi x \$3.13/mi x 8 trucks)	\$17,528
Disposal (160 cy x \$165/cy)	<u>\$26,400</u>
Subtotal	\$46,692

DECONTAMINATION OF TREATMENT AREA CONCRETE PAD

- Detergent wash/rinse Labor (100 mh x \$17.28)	\$1,728
- Washwater disposal (4000 gall) (4000 gall x \$1.50/gall)	\$6,000
Transportation (1600 mi x \$3.65/mi)	<u>\$5,840</u>
Subtotal	\$13,568

TRUCK STAGING/CONTAINMENT AREAS

- Detergent wash/triple rinse Labor (32 mh x \$17.28/mh)	\$553
Washwater disposal (1000 gall) (800 gall x \$1.50/gall)	<u>\$1,200</u>
Subtotal	\$1,753

ASH CONTAINER STORAGE AREA CONTAINMENT PAD

- Detergent wash/triple rinse Labor (24 mh x \$17.28/mh)	\$415
Washwater disposal (300 gall) (300 gall x \$1.50/gall)	<u>\$450</u>
Washwater transportation*	
Subtotal	\$865

POLYETHYLENE TANK

- Disposal (Reduced to 4 cy) (4 cy x \$165/cy)	<u>\$660</u>
- Transport with contaminated soil	
Subtotal	\$660

SOIL/RINSE WATER SAMPLING AND ANALYSIS

- Storage magazines (10 rinse water samples and 8 soil samples for VOC, extractable organics, metals 18 samples x \$750/sample	\$13,500
- Treatment Area Concrete Slab (3 rinse samples x \$750/sample)	\$2,250
- Truck Staging/Containment Areas, Prep. Bldg. (5 rinse samples x \$750/sample)	\$3,750
- Detention Pond (2 soil samples x \$750/sample)	<u>\$1,500</u>
Subtotal	\$21,000

EXCAVATION/DISPOSAL OF CONTAMINATED SOIL

- Storage magazines (assume 1 cy soil/mag) (10 mags x 1 cy/mag x \$165/cy)	\$1,400
- Detention Pond (Assume 10 cy soil removed) (10 cy x \$165/cy)	\$1,650
- Transportation (700 mi x \$3.13/mi x 1 trucks)	<u>\$2,191</u>
Subtotal	\$5,491

MISCELLANEOUS EQUIPMENT AND SUPPLIES

- Mobile tank rental (3 months)	\$1,500
- Biodegradable detergent	\$50
- Personnel protective equipment	<u>\$200</u>
Subtotal	\$1,750

ENGINEERING CERTIFICATION

- 100 mh x \$65/mh	\$6,500
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CLOSURE COST SUBTOTAL	\$139,714
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CONTINGENCIES @ 6%	\$8,383
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TOTAL CLOSURE COST FOR UNITS (1992)	\$148,097
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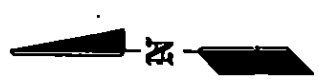
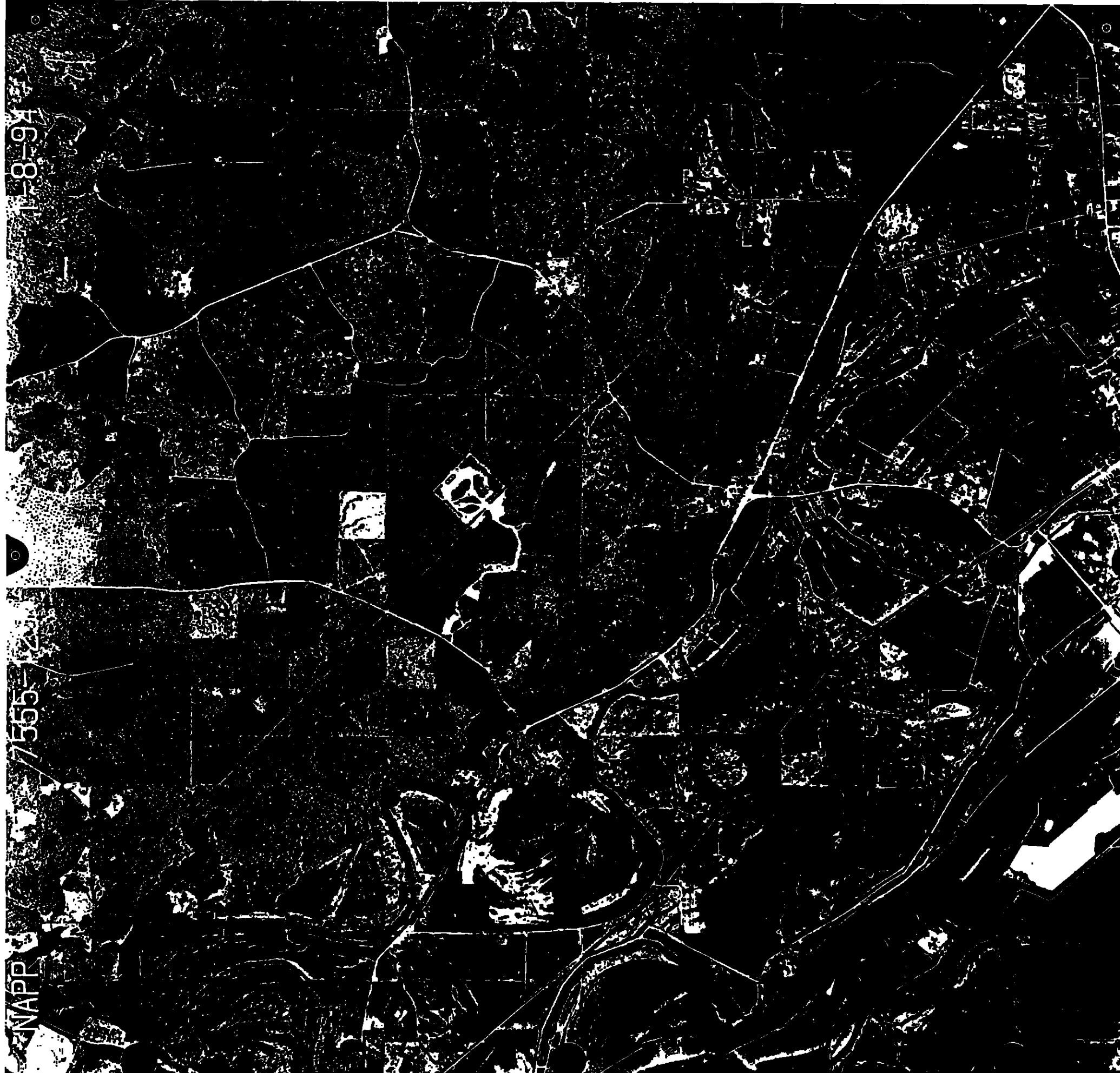
<u>TOTAL CLOSURE COST FOR UNITS (1997)</u>	165,926
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TABLE 5
CLOSURE SCHEDULE
LADLAW ENVIRONMENTAL SERVICES INCORPORATED
(THERMAL TREATMENT)
COLFAX FACILITY

CLOSURE ACTIVITY	0	30	60	90	DURATION (DAYS)			
					120	150	180	
Receive Final Waste Volume	X	.	.	.	.	.	.	.
Treat Final Waste Volume	.	XXXXXXXXXXXXXXXXXX.	.	.	.	.	.	.
<u>STORAGE MAGAZINES</u>								
Remove Wood and Treat Interiors	.	.	.XXXXXX.	.	.	.	.	.
Pressure Wash - Sample/Analyze Rinsate Dispose of Rinsate	.	.	.XX	.	.	.	.	.
Sample/Analyze Soil at Entrances Dispose as Required	.	.	.XXXXXXXX.	.	.	.	.	.
Remove MagazinesXX.	.	.	.	.
<u>TRUCK PARKING/STAGING AREAS</u>								
Remove and treat residuesXX.	.	.	.	.
Pressure wash secondary containmentXX.	.	.	.	.
Sample and analyze rinsateXXXXXXXX.	.	.	.	.
<u>PREPARATION BUILDING</u>								
Remove and treat residuesX	.	.	.	.
Pressure wash secondary containmentX.	.	.	.	.
Sample and analyze rinsateX	.	.	.	.
Decontaminate/remove polyethylene tankX.	.	.	.	.

CLOSURE ACTIVITY	DURATION (DAYS)					
	0	30	60	90	120	150
<u>TREATMENT AREA</u>						
Initiate closure (remove residues, burn pots, troughs and pads)XXXX	.
Remove residues from treatment area padXXXXXX	.
Pressure wash/rinse treatment area padXXX.	.
Sample and analyze rinsewater/dispose as required based on analysisXXX	.
Sample and analyze detention pond soilXXXX	.
Remove detention pond soil if requiredXXXXXX.	.
Remove warning signsX
Closure CertificationXXXXXXXXXXXXXXXXXX

figures

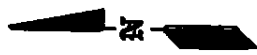


G&E ENGINEERING
A Division of Tedjak - CRA COMPANY
ENVIRONMENTAL CONSULTANTS

LIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.
COLFAX, LOUISIANA
Client

LIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.
COLFAX, LOUISIANA
Project Location

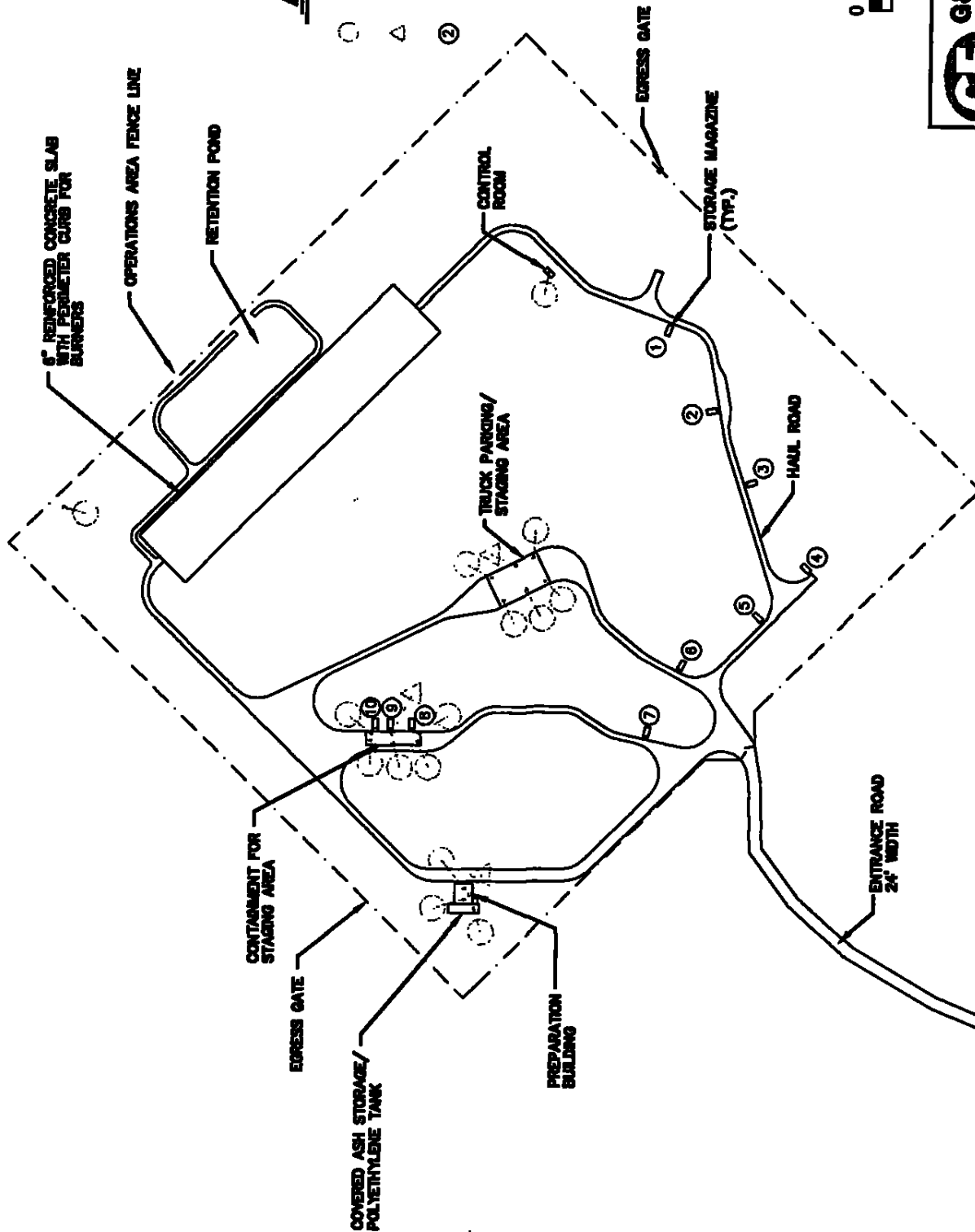
AERIAL PHOTO		AS SHOWN SCALE
		24216-00-B3
		DRAWING No.
		REV.
		2
		FIG./SHEET No.



LEGEND

- FIRE EXTINGUISHER
- △ EMERGENCY EYEWASH/
SHOWER STATION
- ② MAGAZINE NUMBER

0 feet 300
SCALE



**SECURITY AND
EMERGENCY EQUIPMENT
LOCATIONS**

3

Fig No.

**LADLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.**
COLFAX, LOUISIANA

Project Location

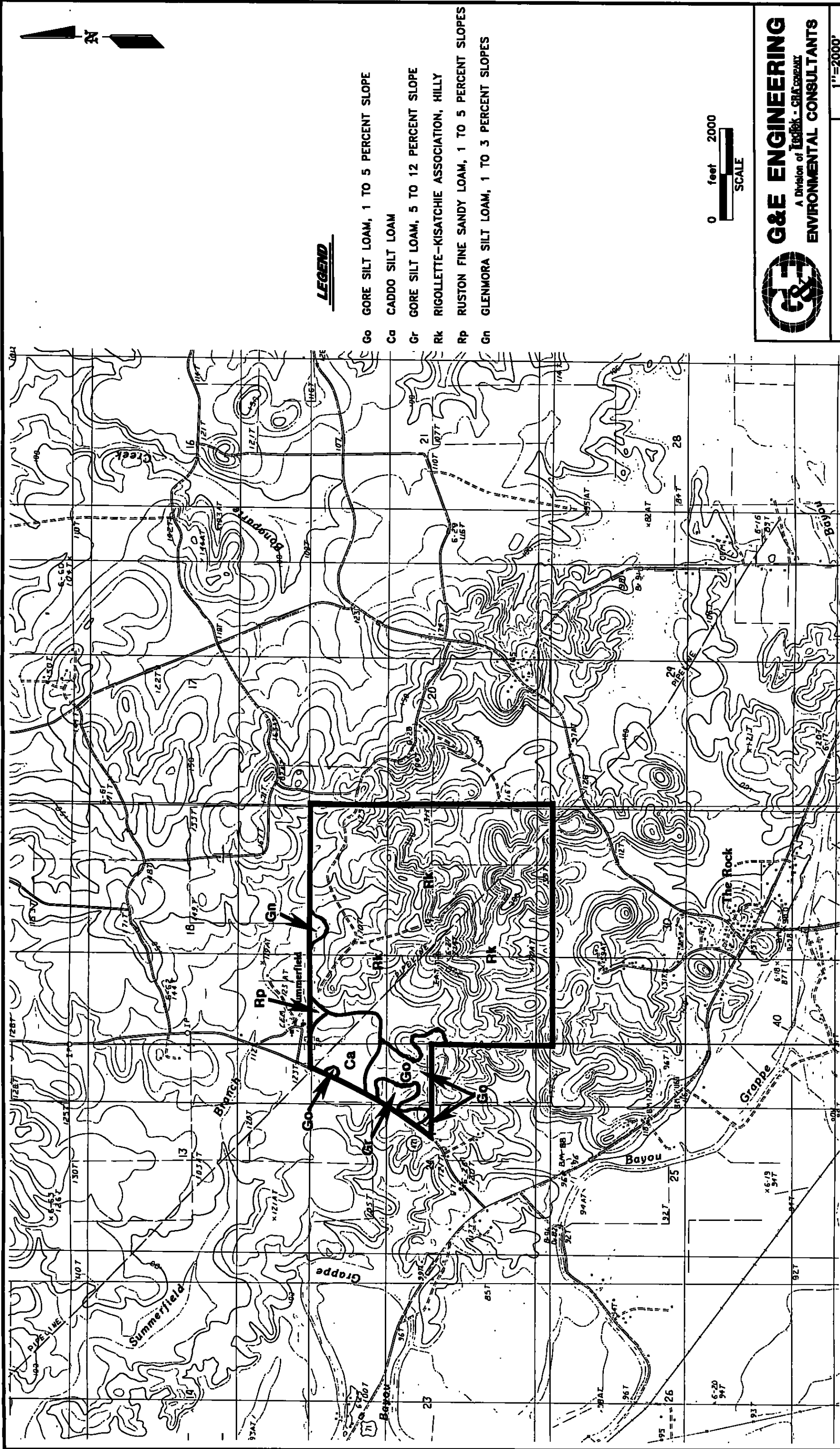
**LADLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.**
COLFAX, LOUISIANA

Client

RE: VIROGROUP, DRAWING No. 3092501, DATED FEBRUARY 1985.

03/25/97	0	24216-00-A1
Date	Rev. No.	Drawing No.
WPS	T8	
Drawn by	Checked By	Approved By

[Signature]



LEGEND

- Go GORE SILT LOAM, 1 TO 5 PERCENT SLOPE
- Ca CADDO SILT LOAM
- Gr GORE SILT LOAM, 5 TO 12 PERCENT SLOPE
- Rk RIGOLLETTE-KISATCHIE ASSOCIATION, HILLY
- Rp RUSTON FINE SANDY LOAM, 1 TO 5 PERCENT SLOPES
- Gn GLENMORA SILT LOAM, 1 TO 3 PERCENT SLOPES



G&E ENGINEERING
A Division of **Leidos - GEA COMPANY**
ENVIRONMENTAL CONSULTANTS

**USDA-SCS
SOILS MAP**

1"=2000'
SCALE
24216-00-B7 0
DRAWING No. REV.
4
FIG./SHEET No.

LIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.
COLFAX, LOUISIANA
Project Location

LIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.
COLFAX, LOUISIANA
Client

DESIGNED BY: **WP. SMITH**
DRAWN BY: **03/15/97**
CHECKED BY: **03/15/97**
APPROVED BY: **03/15/97**

DATE	NO.	REVISION	BY



LEGEND

- 08 WATER WELL WITH USGS WELL NUMBER
- LAND USE
 - LOW DENSITY RESIDENTIAL/COMMERCIAL
 - AGRICULTURE/UNDEVELOPED

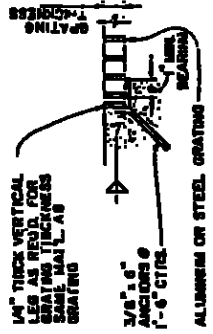
G&E ENGINEERING
A Division of **TECHNICAL CONSULTANTS**
ENVIRONMENTAL CONSULTANTS

LAND USE AND WATER WELL MAP		
DATE	2/15/00	0
REVISION	2/15/00	1
DATE	2/15/00	6

LADLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT), INC.
COLFAX, LOUISIANA

LADLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT), INC.
COLFAX, LOUISIANA

REV	DATE	DESCRIPTION
0	2/15/00	INITIAL
1	2/15/00	REVISED
2	2/15/00	REVISED
3	2/15/00	REVISED
4	2/15/00	REVISED
5	2/15/00	REVISED
6	2/15/00	REVISED



GRADING SUPPORT DETAIL



NOTE:
TRUCK PARKING/STAGING AREA COVER
WILL BE CALIGNED BY OTHERS WITH
MIN. CLEARANCE OF 14 FT.



1. Concrete must have a minimum compressive strength at 28 days of 4,000 psi.
a. on columns.
2. All concrete must have a minimum compressive strength at 28 days of 4,000 psi.
a. on columns.
3. All concrete must have a minimum compressive strength at 28 days of 4,000 psi.
a. on columns.
4. All concrete must have a minimum compressive strength at 28 days of 4,000 psi.
a. on columns.
5. All concrete must have a minimum compressive strength at 28 days of 4,000 psi.
a. on columns.
6. All concrete must have a minimum compressive strength at 28 days of 4,000 psi.
a. on columns.
7. All concrete must have a minimum compressive strength at 28 days of 4,000 psi.
a. on columns.
8. All concrete must have a minimum compressive strength at 28 days of 4,000 psi.
a. on columns.
9. All concrete must have a minimum compressive strength at 28 days of 4,000 psi.
a. on columns.
10. All concrete must have a minimum compressive strength at 28 days of 4,000 psi.
a. on columns.

6. Contractor shall take all necessary precautions to prevent vibration of structural steel, completed and built-in in place.
7. Dimensions and layout of equipment, pipe, supports, penetrations, and openings shall be verified and coordinated with the equipment manufacturers.
8. Components shall comply with architectural, mechanical and electrical drawings.
9. Construction joints shall conform to ACE 101 and ACE 102 for steel sections.
10. Under Penetration - a. Concrete shall be casted provided by applying a liquid polyurethane coating or modified epoxies and use.
- b. Materials shall follow ASTM C-800.
- c. Concrete supports shall be prepared and installed according to Under Penetration.



LIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.

**TRUCK STAGING/
PARKING**

**AS SHOWN
SCALE**

24216-01	0
JOB No.	REV

FIG./SHEET No.
6

DESIGNED BY: _____	BY _____
DRAWN BY: _____	BY _____
CHECKED BY: _____	BY _____
APPROVED BY: _____	BY _____
DATE _____	NO. _____
	REVISION _____

DESIGNED BY: _____
 DRAWN BY: L.D. MAYERS
 CHECKED BY: TB
 APPROVED BY: PDL

06/03/99
 6-12-99
 6/12/99

**LAIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.**
COLFAX, LOUISIANA
Client

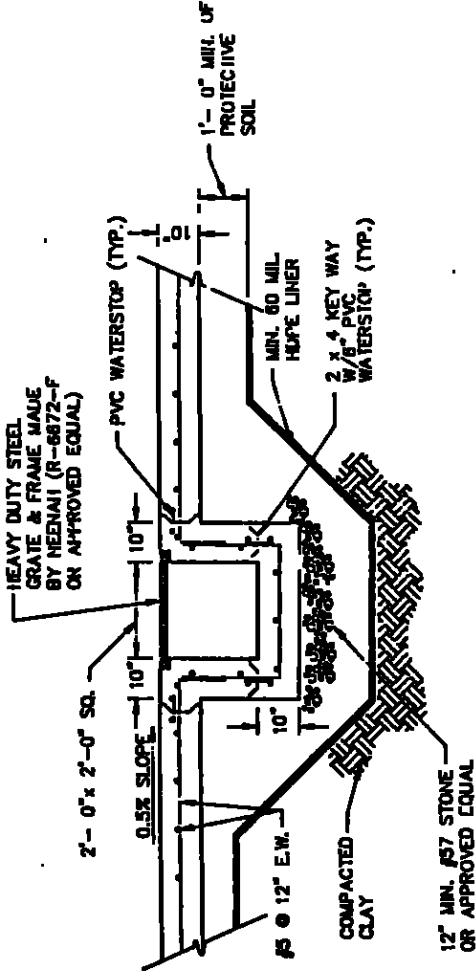
LIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.
COLFAX, LOUISIANA

**AS SHOWN
SCALE**

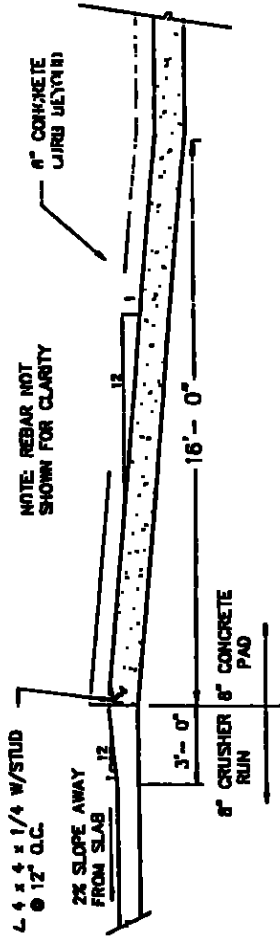
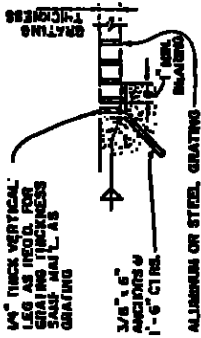
24216-01	0
JOB No.	REV

FIG./SHEET No.
6

STORAGE MAGAZINE (TYP.)
SEE FIGURE-3 FOR MORE DETAILS



TYPICAL SECTION OF SUMP
SCALE: 1/4" = 1'-0"

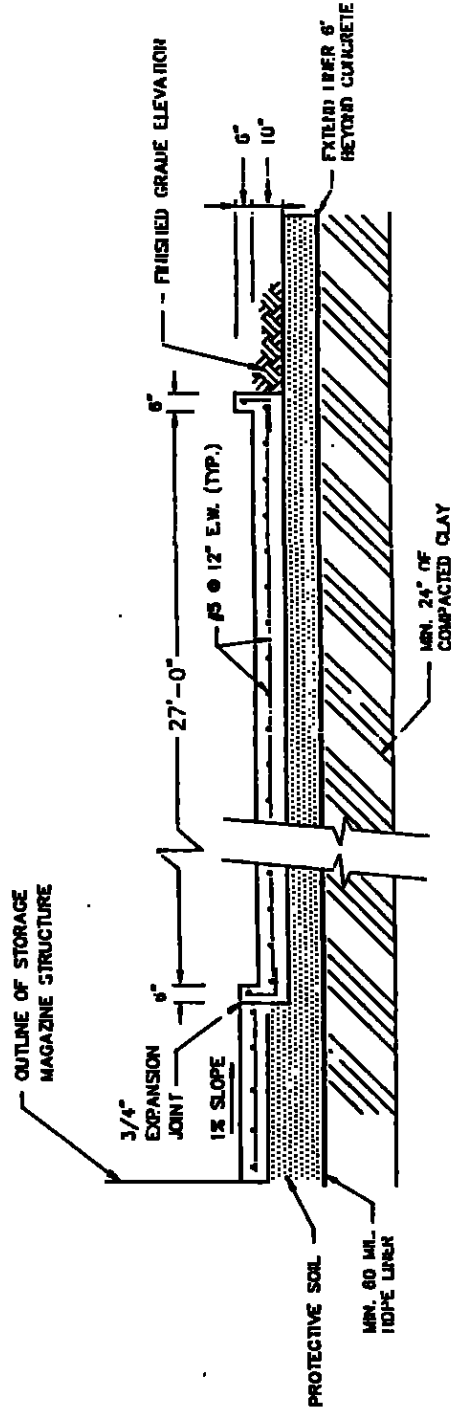


SECTION A-A
SCALE: 3/16" = 1'-0"

NOTE: STORAGE MAGAZINE/TRUCK STORAGE AREA COVER WILL BE DESIGNED BY OTHERS WITH MIN. CLEARANCE OF 14 FEET AND CONSTANT ROOF SLOPE AWAY FROM THE STORAGE MAGAZINE STRUCTURES.

PLAN VIEW

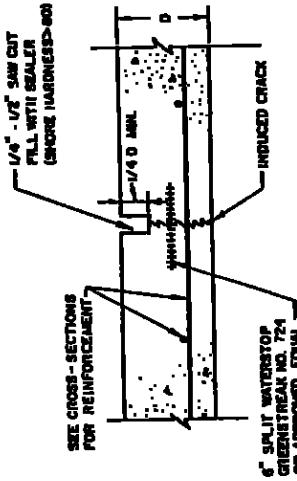
STORAGE MAGAZINE/TRUCK STAGING AREA
SCALE: 1/16" = 1'-0"



SECTION B-B
SCALE: 3/16" = 1'-0"

NOTE: ALL STRUCTURES TO BE CONSTRUCTED ABOVE GRADE

- GENERAL NOTES:
- Concrete shall have a minimum compressive strength of 3000 psi at delivery.
 - Reinforcing steel shall be ASTM A 615 Grade 60, unless otherwise specified.
 - Before concrete is placed, forms shall be checked for alignment and shall conform to ACT 301 and ACT 310 tables.
 - All reinforcement shall be placed in the concrete in accordance with the design and shall be protected by a minimum of 2" of concrete.
 - All concrete shall be placed in the concrete in accordance with the design and shall be protected by a minimum of 2" of concrete.
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TYPICAL CONTROL JOINT DETAIL
NTS

G&E ENGINEERING
A Division of **TRC COMPANY**
ENVIRONMENTAL CONSULTANTS

AS SHOWN	SCALE	24216-01	0
		JOB NO.	REV.
			7
			FIG./SHEET NO.

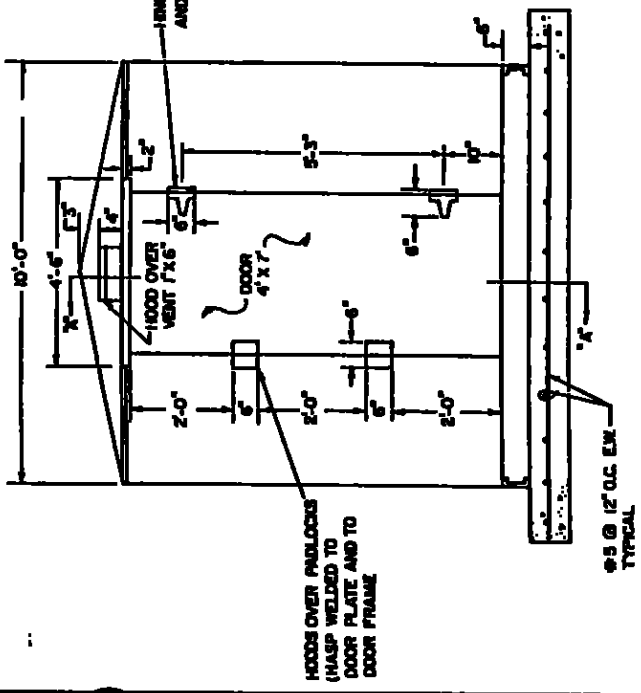
**STORAGE MAGAZINE/
TRUCK STORAGE AREA**

**LIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.**
COLFAX, LOUISIANA

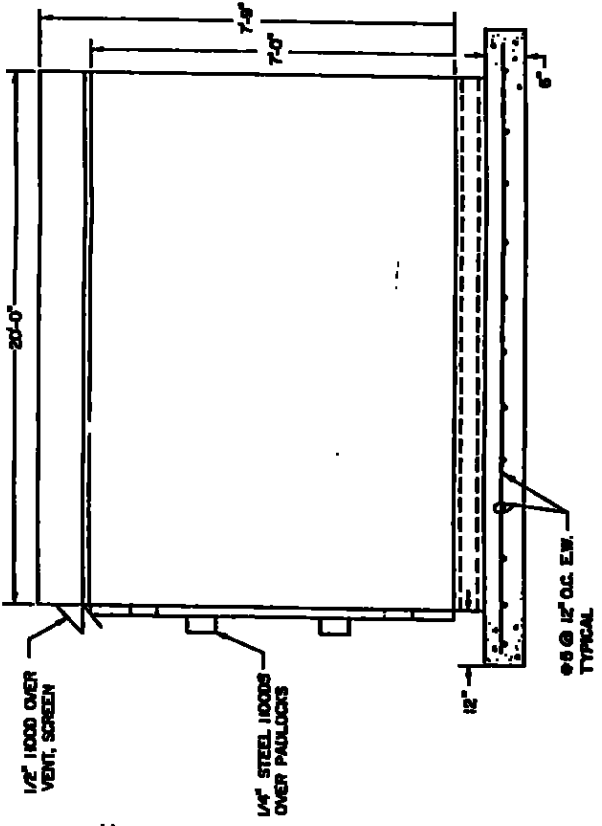
DESIGNED BY: **LD. MATTERS**
DRAWN BY: **LD. MATTERS**
CHECKED BY: **LD. MATTERS**
APPROVED BY: **LD. MATTERS**

DATE	NO.	REVISION	BY

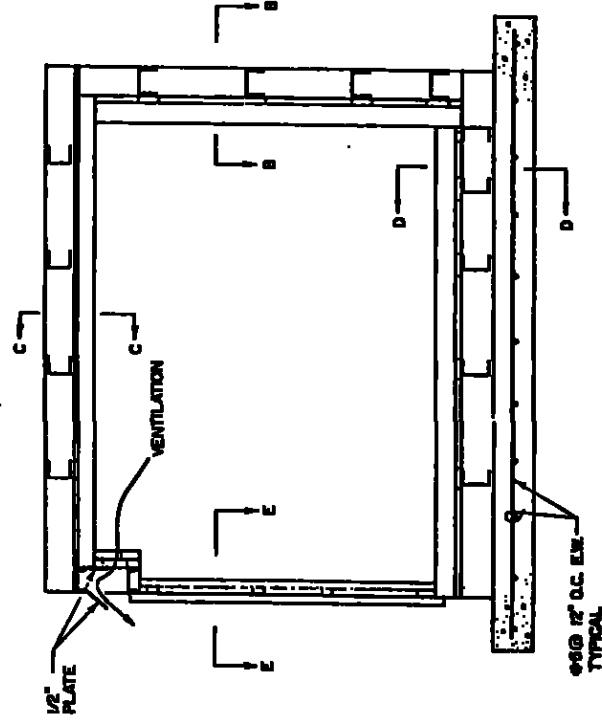
STORAGE MAGAZINES 1-7



FRONT ELEVATION
N.T.S.

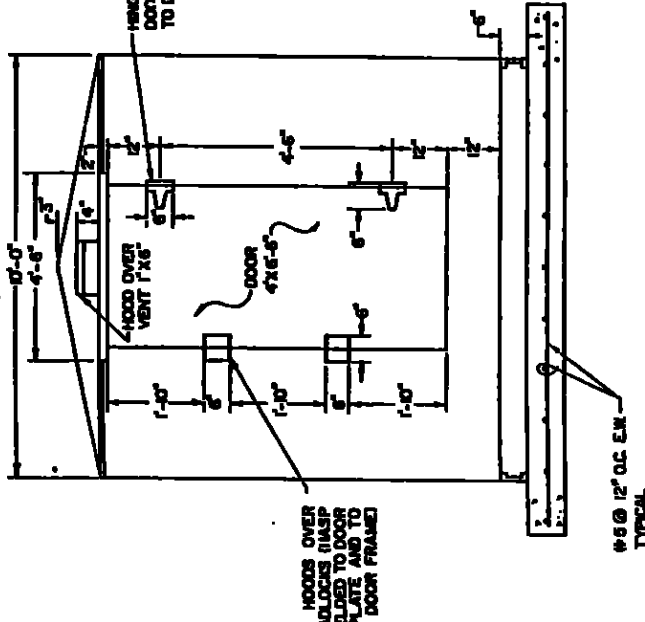


SIDE ELEVATION
NIS

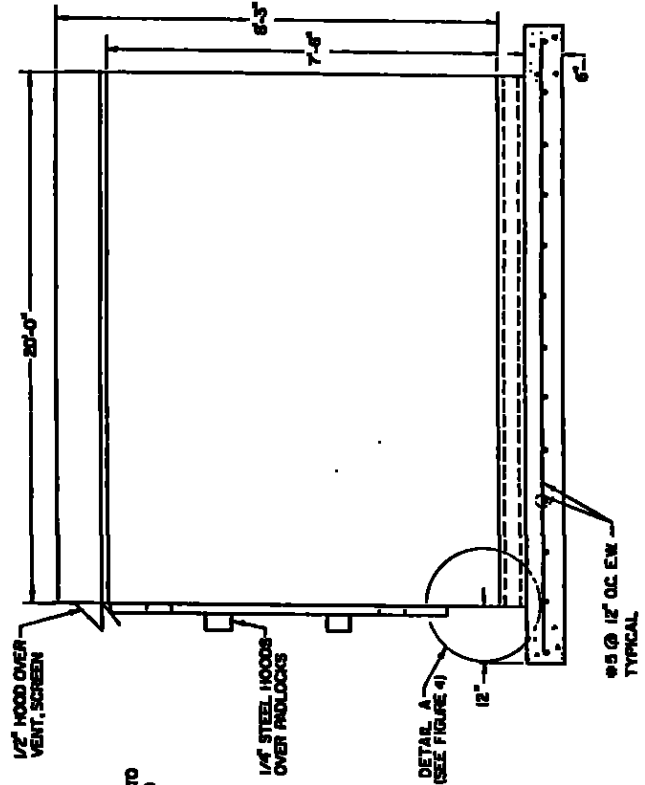


SECTION "A - A"
N.T.S.

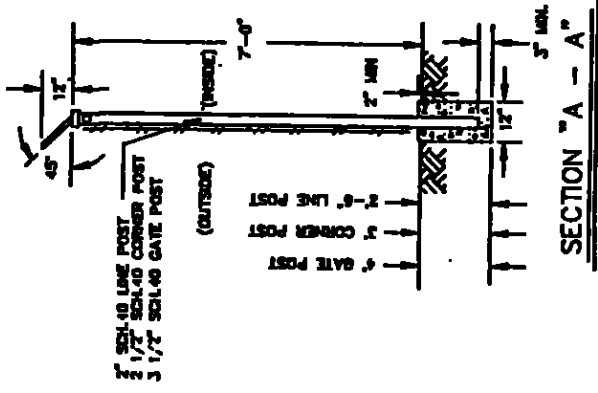
STORAGE MAGAZINES 8, 9 & 10



FRONT ELEVATION
N.T.S.

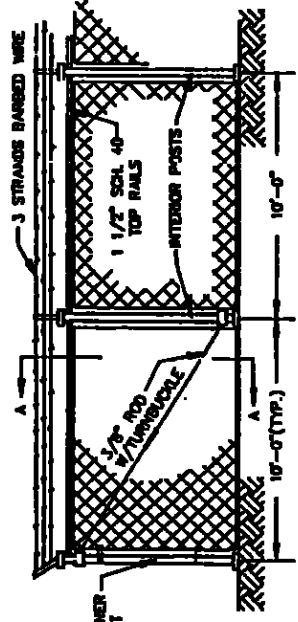


SIDE ELEVATION



SECTION "A - A"

1. CHAIN LINK FENCING PER ASTM A197 CLASS 2, MAX. TENSILE STRENGTH=65 P.S.I. WEAVE PER ASTM A192, 2" MESH WIRE DIAMETER 0.148 IN., GALVANIZED
2. BARBED WIRE PER ASTM A171 CLASS 2 WIRE DIAMETER 0.050 IN. MIN., BARB DIAMETER 0.060 IN. MIN., BARB SPACING 4 IN. MAX., GALVANIZED
3. POST GALVANIZED PER ASTM A631 MIN. TENSILE STRENGTH=45,000 P.S.I.



ELEVATION

SCALE: 1/4" = 1'-0"



G&E ENGINEERING
A Division of **Tedek - CRI COMPANY**
ENVIRONMENTAL CONSULTANTS

**AS SHOWN
SCALE**

24215-01	0
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α

FIG./SHEET No.

**LAIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.**
COLFAX, LOUISIANA.

Project Location

**LIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.**

COLFAX, LOUISIANA
Client

Client

DESIGNED BY: _____

DRAWN BY: L.D. MAYERS 06/03/97

CHECKED BY: TL 6425

APPROVED BY: PAUL 6/12/95

日

REVISION

DATE	NO.
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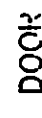
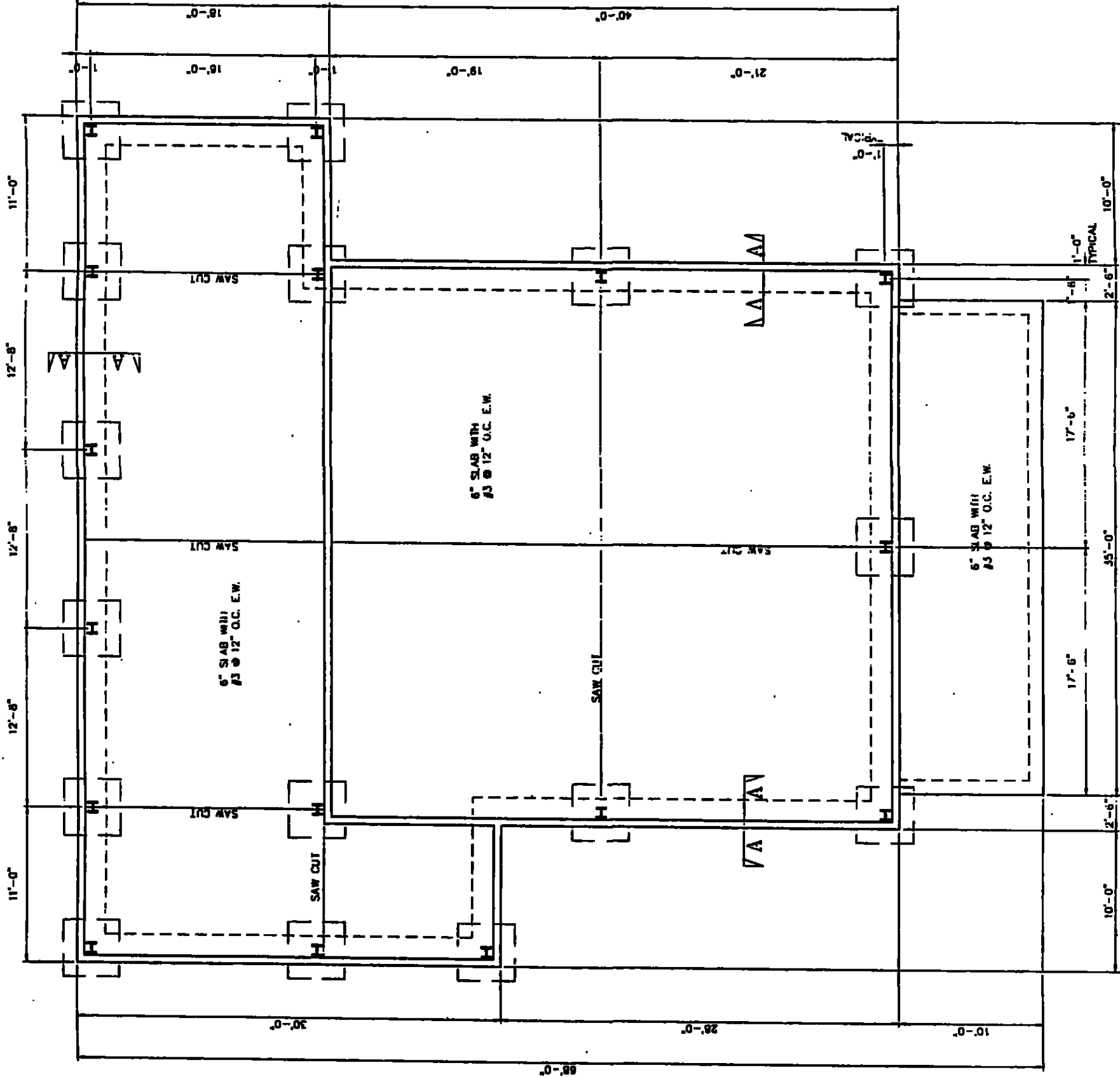


FIG./SHEET No.



FOUNDATION PLAN

RE: VROGROUP, DRAWING No. 309 PREP1.



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A Division of **Teddek - G&E COMPANY**
ENVIRONMENTAL CONSULTANTS

1/8" = 1'-0"
SCALE

24216-01
JOB No.

0
REV.

11
FIG./SHEET No.

**PREPARATION BUILDING
FOUNDATION PLAN**

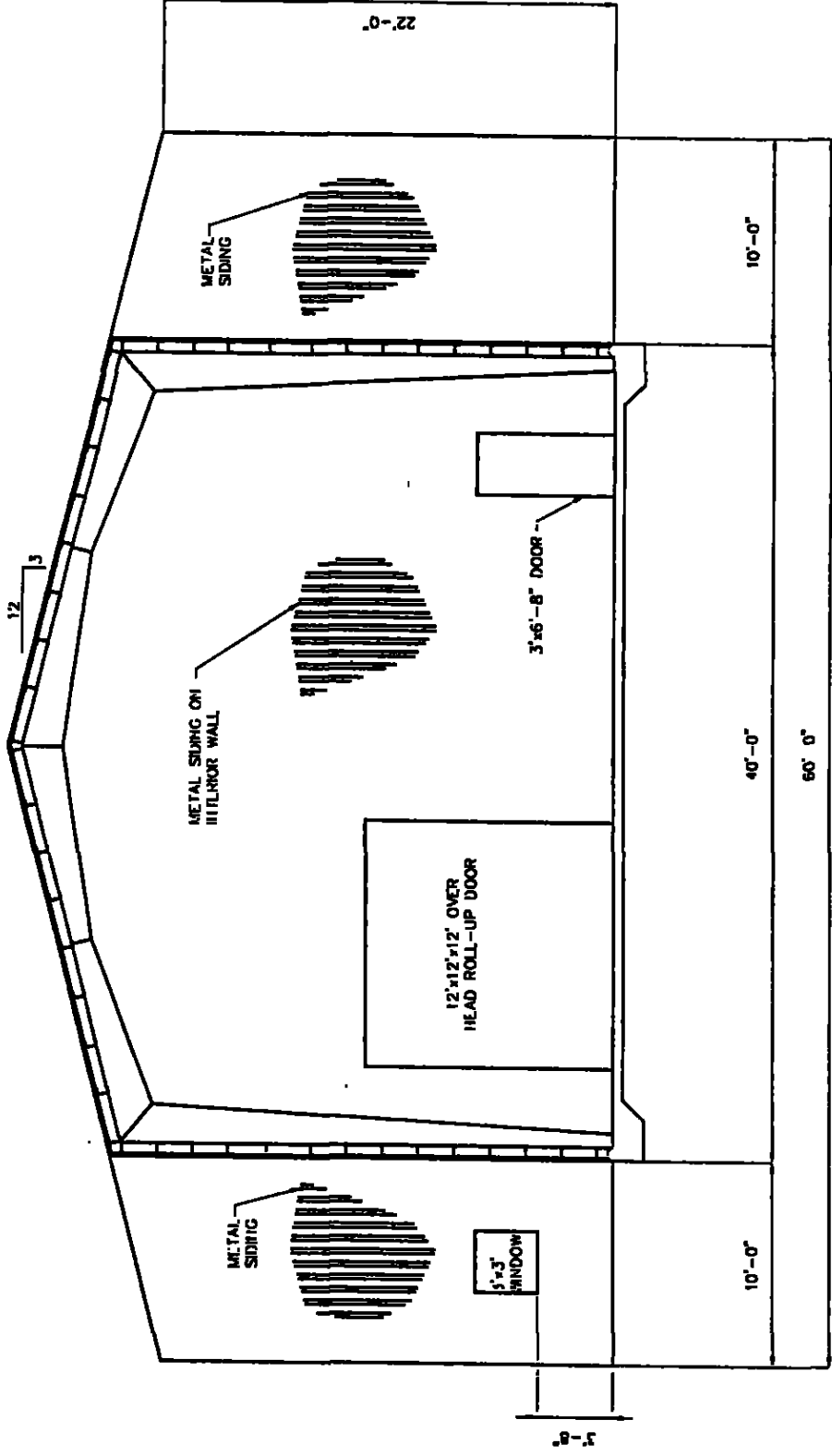
**LAIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.**
COLFAX, LOUISIANA

Project Location

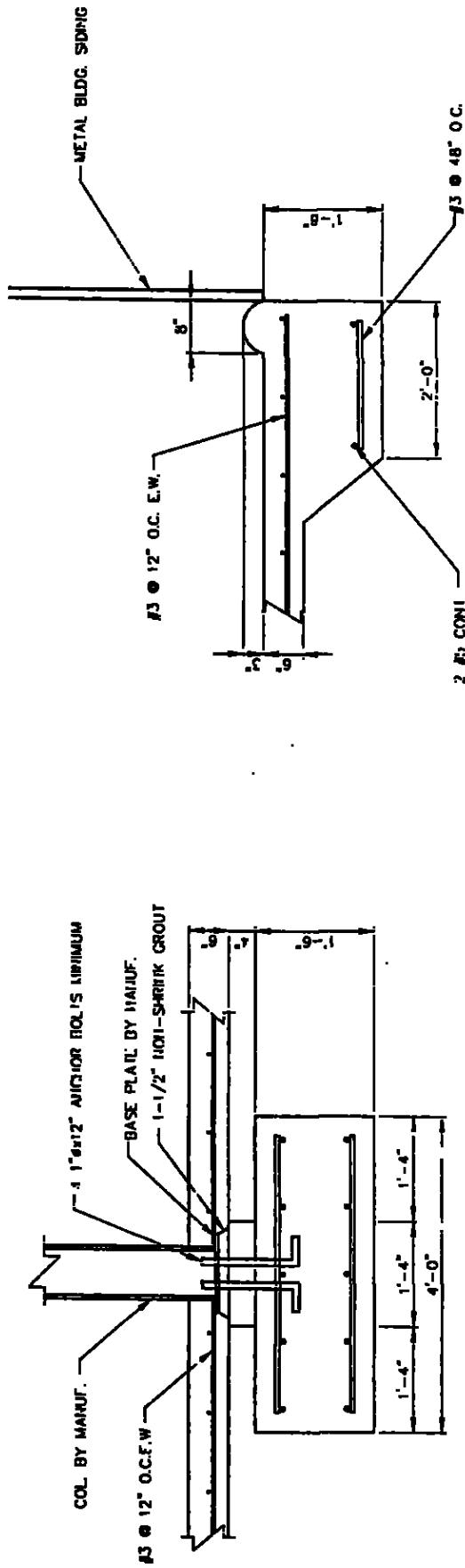
**LAIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.**
COLFAX, LOUISIANA
Client

DESIGNED BY: **L.D. MATTERS**
DRAWN BY: **6-12-01**
CHECKED BY: **6-12-01**
APPROVED BY: **6-12-01**

DATE	NO.	REVISION	BY



SECTION B-B
SCALE: 1/8" = 1'-0"



TYPICAL FOOTING DETAIL
SCALE: 1/2" = 1'-0"

SECTION A-A
SCALE: 1/2" = 1'-0"

RE: VIROGROUP, DRAWING No. 309 PREP.



G&E ENGINEERING
A Division of **TRC COMPANY**
ENVIRONMENTAL CONSULTANTS

AS SHOWN SCALE		24216-01 JOB No.	0 REV.
PREPARATION BUILDING DETAIL SHEET		12 FIG./SHEET No.	

**LAIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.**
COLFAX, LOUISIANA
Project Location

**LAIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.**
COLFAX, LOUISIANA
Client

DESIGNED BY: LD. MATTERS	DATE: 6/12/97
DRAWN BY: 19	6-12-97
CHECKED BY: [Signature]	6/12/97
APPROVED BY: [Signature]	

DATE	NO.	REVISION	BY

APPENDIX 1

LEGAL DESCRIPTION

Legal Description

The Laidlaw site includes all of Section 19, R3W, T7N; and that portion of the northeast quarter of Section 24, R4W, T7N which is east of LA Highway 471. All of this land, with the exception of the eastern half of the southeast quarter of Section 19, is owned by Laidlaw. The attached excerpt from the tax records shows the legal description of the property owned by Laidlaw. The eastern half of the southeast quarter of Section 19 is leased by Laidlaw from International Paper Company.

APPENDIX 2

WASTE ANALYSIS PLAN

SECTION 1

INTRODUCTION

This document constitutes the Waste Analysis Plan (WAP) for the Laidlaw Environmental Services (Thermal Treatment), Inc. (LESTT) hazardous waste treatment facility in Colfax, Louisiana (LAD981055791). It is provided as an appendix to the facility's permit as a stand-alone document.

Two general categories of waste are present at the site: 1) incoming waste destined for thermal treatment at the facility; and 2) waste residues from the thermal treatment process destined for off-site disposal. These two categories of wastes are managed according to very different protocols, primarily for safety reasons. Waste analyses for each of the categories will therefore be addressed in different sections of this WAP.

SECTION 2

INCOMING WASTE

2.1 General. In accordance with LAC 33:V.1519, this WAP establishes protocols for obtaining and maintaining the information necessary to store and treat wastes received at the LESTT facility. Specific procedures include:

- Initial waste screening to determine acceptability
- Criteria for repeating the screening process
- Examination of incoming waste
- Quality Assurance/Quality Control (QA/QC)

2.2 Initial Waste Screening. For all new waste streams proposed for delivery to the facility, LESTT will require the generator to complete a waste profile form providing a detailed chemical and physical description of the waste proposed for thermal treatment. LESTT personnel will verify the waste classification and characteristics by consulting published reference material or other documented analyses of waste generated from similar processes.

2.3 Criteria for Repeating the Screening Process. The screening process will be repeated either on an annual basis, or whenever LESTT is notified, or has reason to believe, that the process or operations generating the waste has been modified. The process will also be repeated whenever the results of an inspection indicate that the hazardous waste received at the facility does not match the waste designated in the accompanying manifest.

2.4 Examination of Incoming Waste. As part of the process to monitor incoming wastes, LESTT personnel will visually examine the waste containers to evaluate whether the actual type and quantity of waste received matches the representations on the manifest. Due

to the reactive nature of the waste managed at the LESTT facility, no physical samples of incoming waste will be collected. If necessary, the analyses used to determine acceptability of the waste will be reviewed to ensure that the waste received is consistent with original representations. Manifest discrepancies will be addressed in accordance with the protocols outlined in the permit application (see response to LAC 33:V.907).

An incoming waste report will be prepared for each shipment accepted. The report will note the manifest number, quantity, type, and on-site storage destination of each shipment. The report will be updated each time wastes are moved to different storage magazines or treatment areas. The updated information will consist of the appropriate manifest document number, type and quantity of waste, and previous and new locations.

2.5 QA/QC. The use of the incoming waste report constitutes the primary Quality Assurance and Quality Control procedure at the LESTT facility. As previously stated, this report is updated each time the waste is managed (e.g., removal from the magazine to the preparation building, removal from the preparation building to the thermal treatment unit, etc.). If at any time a discrepancy or other unusual situation develops, LESTT personnel will immediately contact the site QA/QC manager to determine an appropriate course of action.

SECTION 3

OUTGOING WASTE

3.1 General. This section addresses waste generated from the thermal treatment process. Specific waste streams include:

- Residue remaining from treating characteristic (D003) hazardous waste, and
- Residue remaining from treated listed hazardous waste.

All ash and residue resulting from the thermal treatment process will be stored on-site within a contained area prior to shipment off-site for disposal. Residue from the treatment of characteristic waste will be kept separate from the residue generated in the treatment of listed waste. This waste analysis plan contains methods for evaluating the ash from the treatment of characteristic waste to determine the proper method of handling and disposal.

3.2 Waste Characterization - Residues from Treatment of Characteristic Waste. As previously stated, residue from the treatment of characteristic waste will be separated from residue from the treatment of listed waste. The frequency of sampling will be based on the rate of filling the container, rather than a chronological interval. Sampling will be conducted as follows:

- Three sub-samples will be taken from each container to be shipped, as it is being filled. These will be composited after the final sub-sample is obtained and analyzed as a single sample.
- Sub-samples will be collected as follows; Sub-sample No. 1 will be collected from the ash surface near one end of the container, Sub-sample No. 2 will be collected from the middle of the container at mid-depth of the ash, and Sub-sample No. 3 collected from the opposite end of the container near the bottom.
- Sub-samples will be held and composited for final analysis.

The composite sample will be analyzed to determine if the residue exhibits the characteristic of toxicity for the metals listed in LAC 33:V.4903. Testing will be in accordance with the methods published U.S. Environmental Protection Agency (EPA) *Test Methods for Evaluating Solid Waste*; SW-846; Third Edition. Extraction protocol will comply with SW-846 Method 1310A; analysis for metals will be in accordance with SW-846 methods.

QA/QC documentation to be provided by the contract analytical laboratory will include:

- sample documentation;
- documentation of initial and continuing calibration;
- determination and documentation of detection limits;
- analyte identification and quantification;
- matrix spike recoveries;
- performance evaluation samples;
- analytical error determination; and
- total measurement error determination.

Sample containers will be provided by the laboratory, and will be used as received. Sample containers will be labeled to provide information on the sample location, date, time, sampling personnel, and the parameters for which the waste is to be analyzed. Strict chain-of-custody will be followed.

Any equipment which is used for sampling will be decontaminated prior to use. Decontamination will involve a detergent wash with a non-phosphate detergent followed by triple rinsing with distilled water. After decontamination, the sampling equipment will be wrapped in aluminum foil if not used immediately.

3.3 Waste Characterization - Residue from the Treatment of Listed Hazardous Waste.

The ash residue from the burners used to treat listed hazardous waste will be assigned the waste codes applicable to the waste prior to thermal treatment. This waste will be sent under manifest to a permitted disposal facility.

As required under LAC 33:V, Chapter 22, LESTT will evaluate these wastes to determine whether land ban disposal restrictions apply, and if so, whether further treatment is required to reach permissible disposal concentrations. In such cases, the subject ash will be analyzed for the constituent specified in Chapter 22 for the applicable waste code. All Sampling protocol and analytical methods, including QA/QC requirements, will be as specified in Section 3.2 above.

APPENDIX 3

INSPECTION SCHEDULE

APPENDIX 3 INSPECTION SCHEDULE

<u>Area/Equipment</u>	<u>Specific Item</u>	<u>Type of Problems</u>	<u>Frequency of Inspection</u>
Storage Magazines	Shell/Roof/Floor	Deterioration of wood and metal, holes, cracks, bulges, corrosion, sprung fasteners	Weekly
	Door	Deterioration of wood and metal, holes, cracks, bulges, corrosion, sprung fasteners, sticking, damaged door handles	Weekly
	Locks	Deterioration and malfunction of tumbler locks, corrosion, cracks, holes, sprung fasteners, sticking	Weekly
	Vents	Holes, rips, or blockage of screens	Weekly
	Box or crates	Aisle space, stack heights, improper labeling, damage labels, structural defects, leaks, incompatible wastes	Weekly
Open Burners	Concrete	Deterioration of burners, cracks, pits, spalling	Weekly

NOVEMBER 1997

Appendix 3

<u>Area/Equipment</u>	<u>Specific Item</u>	<u>Type of Problems</u>	<u>Frequency of Inspection</u>
Preparation Building	Covers	Tightness, corrosion, cracks, holes	Weekly
	Burner Assemblies	Corrosion, pits, holes, bulges, cracks, sprung fasteners	Weekly
	Berms	Erosion	Weekly
	Floor	Deterioration of concrete, spalling, cracks, pits	Weekly
	Walls/Roof/Supports	Deterioration of metal, wood, cracks, holes, sprung fasteners	Weekly
Communications	2-Way Radio	Non-operational	Weekly
Lighting	Floodlights	Malfunction of photo-electric sensors, light-bulbs, cracked reflector, cracked cover, deterioration of wiring, sprung fasteners	Weekly
Fences	Fence/Gate	Deterioration of chain links or barbed wire, sprung fasteners, corrosion	Weekly

Appendix 3

<u>Area/Equipment</u>	<u>Specific Item</u>	<u>Type of Problems</u>	<u>Frequency of Inspection</u>
	Locks	Sticking, corrosion, malfunction of tumblers	Weekly
Warning Signs	Signs	Damage, sprung fasteners	Weekly
Onsite transfer	Utility Vehicle	Malfunction of engine deterioration of tires, body and frame, corrosion, cracks, holes, leaks, sprung fasteners, deterioration of wiring, fuel oil	Monthly
	Trailer	Deterioration of metal, wood, tires, sprung fasteners, corrosion, pits, holes, bulges, cracks	Monthly
Emergency Equipment	Fire Extinguishers	Corrosion, leaks, cracks, recharging	Monthly/after each use
	Fire Disk	Corrosion, cracks, pits, sticky disks	Monthly
	Water Hoses	Cracks, holes bulges, deteriorated fittings, sticky valves	Monthly
	Generator	Fuel supply, spark plugs, oil, corrosion, deterioration of exposed wiring, sticky valves	Monthly

Appendix 3

<u>Area/Equipment</u>	<u>Specific Item</u>	<u>Type of Problems</u>	<u>Frequency of Inspection</u>
	First Aid Supplies	Items out of stock	Monthly/as used
Personnel Protection Equipment	Half & Full Faced Respirator	Defective face mask, expired cartridge	Monthly/after each use
	Safety Glasses	Cracked	Monthly
	Hard Hats	Cracked	Monthly
	Tyvek Suits	Worn	Replace as needed
	Nomex Suits	Worn	Replace as needed

APPENDIX 4

CONTINGENCY PLAN

EMERGENCY

**3763 HWY 471, COLFAX, LA 71417
318-627-3443 OR 318-627-3448**

AMBULANCE, FIRE, RESCUE: 911

SHERIFF: 318-627-3261

EMERG. COORDINATOR #1:

**JIM GALLION 318-627-2961 (HOME)
318-451-6593 (MOBILE)**

EMERG. COORDINATOR #2:

**KEN MICHELS 318-765-9691 (HOME)
318-451-7013 (MOBILE)**

EMERG. COORDINATOR #3:

DAVID LASYONE 318-627-3771 (HOME)

STATE POLICE: 504-925-6113

LOUISIANA DEQ: 504-342-1234

Chapter 15

Appendix 4

Contingency Plan and Emergency Procedures

Chapter 15

1513. CONTINGENCY PLAN AND EMERGENCY PROCEDURES

REGULATION:

1513.A. Purpose and Implementation of Contingency Plan

REGULATION:

1513.A.1. Each owner or operator must have a contingency plan for his facility. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water.

Response:

1513.A.1 The contingency plan presented in this section is designed to minimize hazards to human health and to the environment from unplanned reactions. Fires or explosions associated with the wastes managed do not release or create hazardous wastes. Unburned wastes involved in an accidental reaction will be collected and thermally treated in the appropriate burners.

REGULATION:

1513.A.2. A contingency plan to be implemented in the event of an emergency shall be filed with the administrative authority and, after approval, with the local fire and police departments (if any operate in the area), hospitals and emergency response teams operating in the area are subject to call by the operator or the department.

Response:

1513.A.2 Copies of the approved contingency plan will be provided to the local security and emergency response authorities. A copy of the plan will also be maintained onsite.

Chapter 15

REGULATION:

1513.A.3 The provisions of the plan must be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

Response:

1513.A.3. LESTT will immediately implement the procedures presented in the contingency plan whenever an unplanned event occurs at the site that could potentially threaten public health and safety or the environment. LESTT will coordinate its response procedures with the local authorities as detailed in the contingency plan, and will notify the administrative authority as required in Section 1513.F.

REGULATION:

1513.A.4. The plan shall be revised each time the facility operations are changed due to expansion, change in type or quantity of waste handled, or other changes which affect the degree or type of possible emergency situation.

Response:

1513.A.4. Changes in the design or operation of the facility or in the type and nature of the wastes treated at the facility may necessitate revising the contingency plan. These revisions will be submitted in writing with supporting documentation and explanation to the administrative authority for review and approval. Copies of all approved revised contingency plans will be provided to the local security and emergency response authorities upon receipt of approval. A copy of the revised plan will be maintained onsite. Copies of the revised plan will be made available to the administrative authority at their request.

REGULATION:

1513.B. Content of Contingency Plan

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REGULATION:

1513.B.1. The contingency plan must describe the actions facility personnel must take to comply with LAC 33:V.1513.B and F in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.

Response:

1513.B.1 The personnel present at the facility during operations consist of operators and management. The operators conduct the storage and treatment of the wastes. Management is present when the facility is operating. The gate guard will be stationed at the guard house during all periods when operating or management personnel are not on site. The actions these personnel will take in response to unplanned events are described below.

Two-way radios will be used to alert administrative employees in the event of an accidental fire or explosion in the storage or treatment areas. Unplanned reactions or releases of wastes occurring in the storage, preparation, or burning areas will be immediately reported to the Grant Parish Sheriff Department, the Colfax Fire Department, and the Parish Ambulance Service, if appropriate, via telephone. The State Departments of Public Safety, Explosion Control Unit and Environmental Quality will also be notified as appropriate. All storage, treatment, or preparation activities in progress will cease.

The Emergency Coordinator, will evaluate the emergency, and will obtain information regarding the following:

Unplanned Reactions or Fires

- The type and quantity of material involved or threatened;
- The direction in which the fire is heading;
- The intensity of the fire or explosion; and

Chapter 15

- The extent of the area involved.

Uncontrolled Releases

- The type and quantity of material involved or threatened;
- The physical state (i.e., liquid or vapor) of the material, and the direction in which the release is heading;
- The expected duration of the release; and
- The extent of the area involved.

If there is a fire, explosion or release that could ignite or cause other fires, explosions or releases, particularly of other wastes, the Emergency Coordinator will withdraw from the immediate area. If it is possible, he will move reactive materials to a safer location. If it is a fire that may spread beyond the clear zones around storage, preparation, or treatment units, he may proceed to widen the zones, create fire lanes, activate the water hoses or use onsite fire extinguishers to extinguish or minimize spreading of the fire, or determine that it is safer to withdraw. If it is a liquid release that may spread beyond the clear zones around storage, preparation, or treatment units, he may proceed to widen the zones, create dikes or retention structures, or determine that it is safer to withdraw. He will confer with emergency support personnel when they arrive to apprise them of the situation and to evaluate the appropriate method of containment.

In the event of a major fire, explosion or release, the Emergency Coordinator has the authority to order evacuation of the site until emergency support personnel arrive. All facility personnel will be trained in evacuation procedures. All visitors to the operating area will be instructed on the evacuation routes and will be required to report to the office area. The evacuation plan is presented in Section 1513.B.6.

If the Emergency Coordinator is unavailable to respond to an unplanned fire, explosion or release, the Alternate Emergency Coordinator, as designated on the table at the front of this plan will perform the duties of the Emergency Coordinator until emergency support personnel arrive.

Chapter 15

If the gate guard is the only person on site, he will contact the Emergency Coordinator or Alternate Emergency Coordinator who is on call using the information on the table at the front of this plan. Should he be unable to contact the person on call as Alternate Emergency Coordinator, the guard will call the Grant Parish Sheriff Department, the Colfax Fire Department, or the Parish Ambulance Service, as appropriate.

All facility personnel, except the gate guard, are trained in the use of the onsite fire extinguishers, and water hoses for fighting fires, and are trained in emergency first aid procedures to provide assistance to injured parties until emergency support personnel arrive. If necessary, injured personnel will be moved to the facility office for interim treatment. Emergency response personnel will evaluate the condition of the injured. Seriously injured persons will be removed to offsite medical facilities for treatment.

The Emergency Coordinator will return to the area of the emergency and proceed with cleanup procedures. All burn or explosion debris and spilled wastes will be collected and thermally treated onsite. Residue from thermal treatment will be containerized for offsite disposal at a proper facility.

After the emergency is under control and conditions are stable, the Emergency Coordinator will submit a written report in accordance with the procedures presented in Section 1513.F.10.

REGULATION:

1513.B.2. If the owner or operator has already prepared a Spill Prevention, Control, and Countermeasures (SPCC) Plan, or some other emergency or contingency plan, he need only amend that plan to incorporate hazardous waste management provisions that are sufficient to comply with these requirements.

Response:

1513.B.2 No other written SPCC Plan or emergency plan exists for the treatment facility. The requirements of an SPCC plan are incorporated in the contingency plan for the facility.

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REGULATION:

1513.B.3. The plan must describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and state and local emergency response teams to coordinate emergency services.

Response:

1513.B.3 The following local, state, and federal agencies have inspected the site and are familiar with the facility operations:

Local

- Grant Parish Sheriff Department
- Colfax Fire Department
- Parish Ambulance Service

State

- Department of Environmental Quality
- Department of Public Safety - Hazardous Material Section

Federal

- Environmental Protection Agency
- Bureau of Alcohol, Tobacco, and Firearms

These agencies are alert to the potential, even though it is minimal, for fire or explosion to occur at the site and are prepared to respond to an emergency situation. The applicant has made the following arrangements with the local emergency support services:

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The Grant Parish Sheriff Department agrees to provide assistance with coordinating the various local emergency services, to control site access during the emergency, and to provide traffic control.

The Colfax Fire Department agrees to provide firefighting personnel and equipment when requested and to obtain assistance from nearby community fire departments when necessary.

The Parish Ambulance Service agrees to treat injuries and other medical emergencies when requested.

The Parish Ambulance Service agrees to transport seriously injured persons from the site to medical facilities when requested.

Documentation concerning these agreements and the services to be provided by the local emergency support services is provided in Appendix 12.

Copies of the contingency plan with all approved revisions, if any, will be provided to the security and medical responders who have agreed to help.

REGULATION:

1513.B.4. The plan must list names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator, and this list must be kept up to date. When more than one person is listed, one must be named as primary emergency coordinator and others must be listed in the order in which they will assume responsibility as alternates. For new facilities, this information must be supplied to the administrative authority at the time of certification, rather than at the time of permit application.

Response:

1513.B.4. The table at the front of this contingency plan lists the names and phone numbers of the emergency coordinator and alternate emergency coordinators.

Chapter 15

When more than one person on the table is present, the person closest to the top of the list will assume responsibility. When only the gate guard is present, one of the persons on the table will be designated on "on-call" and the guard will call that person should an emergency arise.

REGULATION:

1513.B.5. The plan must include a list of all emergency equipment (where required) at the facility, such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list and a brief outline of its capabilities.

Response:

1513.B.5 Onsite emergency firefighting equipment, spill control equipment and personnel protection equipment is listed below.

Emergency Firefighting Equipment

<u>Equipment</u>	<u>Quantity</u>
Fire Extinguishers	31
Water Hoses	4
Tractor/Fire Disk	1
350 gallon per min. gasoline-operated pump	1

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Spill Control Equipment

<u>Equipment</u>	<u>Quantity</u>
Brooms	4
Shovels	4
Rakes	4
Containment Drums	4

All spill control equipment will be made of non-sparking material.

Personnel Protection Equipment

<u>Equipment</u>	<u>Quantity</u>
Half Face and Full face Respirators	2 each
Safety Glasses	4
Hard Hats	4
Tyvek Suits	2
Nomex Suits	2

* The respirators shall be equipped with MSHA and NIOSH approved combination cartridges for protection from organic vapors, dusts, mists, and fumes.

Portable fire extinguishers are located at the two entrances into each of the open burning areas, at the preparation building, and at the office. These fire extinguishers are refillable. If used during an emergency, the fire extinguishers will be immediately refilled by a qualified company and returned to their onsite locations.

The fire disk consists of a row of tilling disks that are pulled by the tractor.

A tractor is available onsite for earthwork activities, such as building fire lanes and earthen berms and to build fire breaks. The tractor is stored at the equipment shed when not in use.

A pond is located behind the office. The pond can be used as an additional source of water for firefighting.

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Emergency first aid and medical supplies are available at the facility office. Emergency first aid kits are located at the preparation building and in the control room.

In the event of an electrical power failure, a mobile generator can be used to provide interim power. The generator is stored in the equipment shed when not in use.

The spill control equipment will be located at a storage shed adjacent to the preparation building.

The personnel protection equipment will be stored within a cabinet located in the control room.

Cleanup of equipment and the affected area of the facility may involve hand tools, the plow, and water hoses. Personal protective equipment will be used as required during cleanup activities. The residue remaining from an unplanned event will be placed in the appropriate container after an assessment has been made as to whether or not the material contains a listed waste or is the ash residue from combustion of a listed waste.

Unburned reactive material will be collected, possibly using hand shovels, and will be treated in the open burners. Residue can be cleaned up with hand tools and containerized. Cleanup of equipment, such as hand tools or the plow, would consist of a detergent wash and clean water rinse within a contained area. The cleanup equipment and their locations onsite are described above.

Emergency communication devices consist of the following items:

- o Two-way radios
- o Telephones

A telephone is located at the Administration building. This telephone can be used to directly notify emergency response agencies. Two-way radios are located at the office, at the control room, and in the hands of all operations personnel. The radios are used for normal and emergency communications.

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REGULATION:

1513.B.6. The plan must include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. The plan must describe signals to be used to begin evacuation, evacuation routes, and alternate evacuation routes.

Response:

1513.B.6. Whenever an unplanned reaction occurs that may threaten the health of facility personnel, the Emergency Coordinator will order an evacuation of facility. Notification will be made in person, by telephone, or by radio. He will announce where evacuees are to reassemble. Personnel present in the evacuation area may walk or drive to exit the area.

The main evacuation route extends north from the treatment areas, past the storage areas to the office area and Highway 471. This route is also the main road into the facility. The alternate evacuation route extends south and west from the treatment areas then loops back to the office area and Highway 471.

The primary reassembly point is the office near the facility entrance from Highway 471. The Emergency Coordinator will make a head count at the assembly area.

The Evacuation Emergency Control Center will be located at the facility office. A different location may be selected at the discretion of the Emergency Coordinator.

REGULATION:

1513.C. Copies of Contingency Plan

1513.C.1. The contingency plan must be submitted to the administrative authority with the permit application and, after modification or approval, will become a condition of any permit issued.

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Response:

1513.C.1. The contingency plan presented in this permit application is hereby furnished to the administrative authority for review and approval. After approval, the contingency plan will become a condition of the permit.

REGULATION:

1513.C.2. A copy of the contingency plan and all revisions to the plan must be maintained at the facility and additional copies must be submitted to all local police departments, fire departments, hospitals, and state and local emergency response teams that may be called upon to provide emergency services.

Response:

1513.C.2 Copies of the approved contingency plans, including all approved revisions, will be maintained onsite at the facility office. Copies of the plan and revisions will be provided to those agencies listed in Appendix 12 who have been contacted for emergency response assistance.

REGULATION:

1513.D. Amendment of Contingency Plan. The contingency plan must be reviewed, and immediately amended, if necessary, whenever:

1513.D.1. the facility permit is revised;

Response:

1513.D.1.a. Requests to amend the facility permit will be accompanied by a revised contingency plan if appropriate.

REGULATION:

1513.D.2. the plan falls in an emergency;

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Response:

1513.D.2. If the contingency plan is not effective in an actual emergency situation, LESTT will re-evaluate the plan. Appropriate areas of the plan will be updated and the revised plan submitted to the administrative authority for review.

REGULATION:

1513.D.3. applicable regulations are revised;

Response:

1513.D.3. LESTT will review revisions to the regulations to determine their impact on the contingency plan. If applicable, the contingency plan will be modified to respond to such regulation changes.

REGULATION:

1513.D.4. the facility changes its design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;

Response:

1513.D.4. If LESTT proposes to change the design, operation, construction, maintenance, the type of waste accepted, or other aspects of the facility, the effects of such alterations on the potential for unplanned reactions at the site will be evaluated. This evaluation will accompany the request for approval of facility or waste stream changes submitted to the administrative authority. The evaluation will contain an amended contingency plan, if appropriate, to respond to the proposed changes.

REGULATION:

1513.D.5. the list of emergency coordinators changes; or

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Response:

1513.D.5. The table at the front of the plan will be revised whenever any of the emergency coordinator information changes.

REGULATION:

1513.D.6. the list of emergency equipment changes.

Response:

1513.D.6. The onsite emergency equipment may change at the discretion of the operator or in response to changes in facility design, operation, or wastestream. The list contained in this permit application will be updated immediately to reflect equipment changes. The list will also include, where appropriate, the location and physical description of each new item added in accordance with LAC 33:V.1513.

REGULATION:

1513.E. Emergency Coordinator. At all times, there must be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures (see LAC 33:V.1513.F). This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan.

Response:

1513.E. The names and phone numbers of the emergency coordinator and the alternate emergency coordinators are in the table at the front of this plan. When the facility is manned, and the emergency coordinator is absent, the person present, who is listed closest to the top of the table will act as emergency coordinator. When the gate

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guard is the only person at the facility, he will have the name of the designated person on the table who is on call to act as emergency coordinator should the need arise.

REGULATION:

1513.F. Emergency Procedures

REGULATION:

1513.F.1. Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his designee when the emergency coordinator is on call) must immediately:

REGULATION:

1513.F.1.a. activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and

Response:

1513.F.1.a. The emergency coordinator will notify all personnel onsite that an imminent or actual emergency situation exists. The announcement will be made by radio, telephone, or in person. If appropriate, he will instruct them to evacuate the facility and where to assemble.

REGULATION:

1513.F.1.b. notify appropriate state or local agencies with designated response roles if their help is needed.

Response:

1513.F.1.b. The emergency coordinator will notify the appropriate emergency response agencies, if necessary.

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REGULATION:

1513.F.2. Whenever there is a release, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and areal extent of any released materials. He may do this by observation or review of facility records or manifest, and, if necessary, by chemical analysis.

Response:

1513.F.2. As soon as immediate concerns related to fires or explosions are under control, the emergency coordinator will evaluate the character, source, amount, and areal extent of involved materials. He will visit the affected area when it is safe to do so to visually observe the situation. Alternatively, the necessary information may be obtained from facility records, such as manifests.

REGULATION:

1513.F.3. Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire or explosion. This assessment must consider both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions).

Response:

1513.F.3. Possible hazards to human health and the environment from fires or explosions involving the onsite wastes consist of the sudden or non-sudden release of debris, spreading of fires to properties adjacent to the facility, and spreading of fires that could potentially ignite or explode other wastes. The emergency coordinator will evaluate actual and potential hazards in his evaluation, described in Section 1513.F.2, of the emergency situation.

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REGULATION:

1513.F.4. If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health or the environment outside the facility, he must report his findings as follows:

1513.F.4.a. if his assessment indicates that evacuation of local areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and

Response:

1513.F.4.a. The emergency coordinator will notify the Grant Parish Sheriff Department, the Colfax Fire Department, and the Department of Public Safety - Hazardous Materials Section if he determines that offsite evacuation is necessary. He will provide them with his findings as to the nature and extent of the emergency situation and assist them in defining areas to be evacuated.

REGULATION:

1513.F.4.b. he must immediately notify the state official designated as the on-scene coordinator for that geographical area and provide:

REGULATION:

1513.F.4.b.i. name and telephone number of reporter;

Response:

1513.F.4.b.i. The emergency coordinator will identify himself by name and provide the state official with a telephone number where he can be reached.

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REGULATION:

1513.F.4.b.ii. name and address of facility;

Response:

1513.F.4.b.ii. The emergency coordinator will provide the name of the facility, the address, and directions to locate the site to the state official.

REGULATION:

1513.F.4.b.iii. time and type of incident (e.g., release, fire);

Response:

1513.F.4.b.iii. The emergency coordinator will provide the time, expected duration, and type of emergency situation to the state official.

REGULATION:

1513.F.4.b.iv. name and quantity of material(s) involved, to the extent known;

Response:

1513.F.4.b.iv. The emergency coordinator will describe the name, nature, extent, and quantity of material involved based on his best assessment to the state official.

REGULATION:

1513.F.4.b.v. the extent of injuries, if any; and

Response:

1513.F.4.b.v. The emergency coordinator will describe the number of injured personnel and the extent of their injuries, if any.

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REGULATION:

1513.F.4.b.vi. the possible hazards to human health or the environment, outside the facility.

Response:

1513.F.4.b.vi. The emergency coordinator will report his assessment of the nature and extent of potential hazards to offsite human health and the environment, to the state official.

REGULATION:

1513.F.5. During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

Response:

1513.F.5. All operations at the facility will cease if an unplanned event occurs at the plant. The emergency coordinator will direct his activities and the activities of other onsite personnel towards stabilizing the emergency situation. The emergency coordinator will utilize onsite equipment, such as the water hoses, tractor, fire disk, or fire extinguishers, as appropriate, to minimize the spread of any fires or reduce the potential for igniting or exploding other wastes. The emergency coordinator will attempt to isolate stored wastes from fires or explosion by such activities as closing the storage magazines, removing untreated wastes from threatened areas to safer locations, and wetting areas surrounding the treatment and storage units. Once the emergency situation is controlled or eliminated, the emergency coordinator will begin cleanup activities as appropriate. Such activities could involve collecting debris from burned wastes, thermally treating unburned wastes, and containerizing burned or treated waste residues for disposal offsite.

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REGULATION:

1513.F.6. If the facility stops operation in response to a fire, explosion, or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

Response:

1513.F.6. The emergency coordinator will not need to monitor for potential gas generation, pressure build-up, leaks, or ruptures of valves, pipes or other equipment at this site. The storage, preparation, and treatment of the wastes involve storage magazines, a roofed area with a concrete slab and electrical tools in the preparation buildings, and open burners in the burning area. Gas lines or aboveground piping are not present at the facility.

REGULATION:

1513.F.7. Immediately after an emergency, the emergency coordinator must provide for treating, storing, or disposing of recovered waste, contaminated soil, or surface water, or any other material that results from a release, fire, or explosion at the facility. Unless the owner or operator can demonstrate that the recovered material is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements.

Response:

1513.F.7. After an emergency, any residues can be visually examined for the presence of untreated waste. Recovered unburned or unexploded wastes can be thermally treated in the burners. Residues from burned or exploded wastes can be collected and containerized for disposal offsite. Prior to removal and containerization, a determination will be made regarding whether or not the residues are hazardous waste.

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Equipment used to collect hazardous wastes and waste residues will be decontaminated using a detergent wash followed by triple rinsing with deionized water within a contained area. All wash water and rinsate from cleanup of waste will be collected and shipped to a permitted facility for disposal. The treating, storing, and disposal procedures for wastes involved in a fire or explosion are the same as used when treating these wastes. Such procedures are described in Section 517.T.7. of this permit application.

REGULATION:

1513.F.8. The emergency coordinator must ensure that in the affected area(s) of the facility:

1513.F.8.a. no waste that may be incompatible with the release material is treated, stored, or disposed of until cleanup procedures are completed; and

Response:

1513.F.8.a. The emergency coordinator will ensure that other wastes that are incompatible with the wastes will be treated, stored, and disposed of separately after cleanup of affected wastes is completed.

REGULATION:

1513.F.8.b. all emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

Response:

1513.F.8.b. The emergency coordinator will ensure that equipment utilized in the emergency is cleaned by water washing. Discharged fire extinguishers will be refilled. After cleaning and servicing, he will return the emergency equipment to the proper locations in the facility to prepare for future emergency situations. Operations at the facility will not restart until cleanup is completed.

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REGULATION:

1513.F.9. The owner or operator must notify the administrative authority and appropriate state and local authorities that the facility is in compliance with LAC 33:V.1513.F.8 before operations are resumed in the affected area(s) of the facility.

Response:

1513.F.9. Operations at the facility will not resume in the affected areas until cleanup is completed and all emergency equipment is cleaned and returned to its proper location onsite. The operator will notify the administrative authority and local authorities that the facility is ready to begin operations and is in compliance with LAC 33:V.1513.F.8.

REGULATION:

1513.F.10. The owner or operator must note in the operating record the time, date, and details of any incident that requires implementation of the contingency plan. Within 15 days after the incident, he must submit a written report on the incident to the administrative authority which includes:

REGULATION:

1513.F.10.a. name, address, and telephone number of the owner or operator;

Response:

1513.F.10.a. The written report submitted within 15 days after the incident will include the name, address, and telephone number of the operator:

Laidlaw Environmental Services
3763 Highway 471
Colfax, LA 71417
Telephone: 318-627-3443 or 318-627-3448

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REGULATION:

1513.F.10.b. name, address, and telephone number of the facility.

Response:

1513.F.10.b. The written report will include the name, address, and telephone number of the facility.

Laidlaw Environmental Services
3763 Highway 471
Colfax, LA 71417
Telephone: 318-627-3443 or 318-627-3448

REGULATION:

1513.F.10.c. date, time, and type of incident (e.g., fire, explosion);

Response:

1513.F.10.c. The report will include the date and time of the incident and will specify if the incident was a fire or explosion. The area involved in the incident will also be identified.

REGULATION:

1513..F.10.d. name and quantity of material(s) involved;

Response:

1513.F.10.d. The name and estimate of the quantity of each waste material involved in the fire or explosion will be listed in the report.

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REGULATION:

1513.F.10.e. the extent of injuries, if any;

Response:

1513.F.10.e. The report will note the number of people injured, if any, and will describe the type and extent of the injuries.

REGULATION:

1513.F.10.f. an assessment of actual or potential hazards to human health or the environment, where this is applicable; and

Response:

1513.F.10.f. The report will include a description of any actual or potential hazards to human health and the environment that may have developed as a result of the incident. The assessment will be made for the facility and for offsite, if appropriate.

REGULATION:

1513.F.10.g. estimated quantity and disposition of recovered material that resulted from the incident.

Response:

1513.F.10.g. The nature, estimated quantity, and disposition of the material recovered during cleanup of the affected area will be presented in the report.

End of Appendix 4

**(Contingency Plan
and Emergency Procedures)**

APPENDIX 5

TRAINING MANUAL OUTLINE AND DESCRIPTIONS/JOB DESCRIPTIONS

**Laidlaw
Environmental
Services
(Thermal Treatment)**

**Training Management
Plan**

Colfax, LA

Revised 6/95

Table Of Contents

Laidlaw Environmental Services(Thermal Treatment)

Training Management Plan

This binder contains all materials necessary to implement the facility Training Management Plan, as described in the permit. It consists of the following sections:

Tab 1: Training Overview

This section includes information about the use and implementation of the materials in this binder. Each job title is categorized into an employee group; each group is listed in a matrix that shows the specific courses given to that group. A general description of each course is also listed (specific descriptions can be found in the "employee handouts" section).

Tab 2: Trainer Guidelines

The Trainer Guidelines section includes a separate guideline for each of the training modules that are a part of the regular initial and annual training at this facility. Each guideline includes performance objectives, instructional strategies, exercises, and listings of any supplemental videos. This section is set up so that any qualified trainer can review it and the handouts briefly and use them to conduct the course.

Tab 3: Employee Handouts

This section contains the classroom handouts for each module. Each handout includes content information, charts, graphs, and exercises for the employees to use and keep for reference after training has been completed.

Tab 4: Training Documentation

This section includes originals of the forms that are designed to show that an employee has completed the appropriate regulatory training. Each employee needs to complete a new form each year. There is a different form for each employee group, because each group needs different modules. Since each module is listed individually, employees sign as they attend training. When all of the module listings have been signed, training is complete for the year.

If the annual training is done all at one time, modified forms requiring only one employee and trainer signature may be used.

Tab 5: Supplementary Information

Additional training agendas and outlines are kept in this section. Items to be placed here include agendas from OSHA 40-, 24-, and 8- hour training, Defensive Driving training, and descriptions of any other training done, like specialized asbestos or PCB handling training.

JOB DESCRIPTION

TITLE: Facility Manager

REPORTING: Director of Recovery Technologies

BASIC FUNCTIONS: To manage the Operations, Maintenance, and Engineering functions and oversee all other activities at the Colfax Facility to achieve stated profitability goals. To provide dependable quality service to all customers while maintaining compliance with all regulations.

QUALIFICATIONS: Minimum four year technical or business, BS or BA degree from an accredited college or university, or equivalent. Completion of company-approved hazardous waste management training program. Minimum five years experience in the hazardous waste industry or equivalent.

SPECIFIC DUTIES:

1. Oversee and guide daily Operations and long range business planning of the Colfax Facility.
2. Provide direct management of all Operations, Laboratory, Maintenance, and Engineering activities at the Colfax Facility.
3. Coordinate the activities of Operations, Sales, Technical Services, Accounting, Compliance, Health & Safety, and Human Resources to ensure smooth operations in accomplishment of written business plans and objectives.
4. Develop written business plans, goals, and objectives and develop strategies to attain each.
5. Ensure compliance with all regulatory requirements to maintain proper business operations.
6. Ensure a safe and healthful working and living environment for all employees, visitors, and surrounding neighbors.
7. Ensure a productive and motivated work force.

8. Maintain a good relationship and positive image with the local community.
9. Safeguard and maintain all-physical assets at the facility.
10. Ensure an ROA on all assets acceptable to company guidelines and senior management.
11. Sign and approve all purchase orders and invoices.

Position Title: OPERATIONS MANAGER

Fac/Dept: Colfax LA/Operations

FAC #540

Reports Directly to: Facility Manager

BASIC FUNCTIONS: Supervises and manages daily facility explosive/reactive treatment and directs explosive technicians daily routines and activities. Manages on site inventory control over explosive/reactive storage and tracking. Writes standard operating procedures (SOP) on explosive/reactive storage, on site transportation, treatment preparation, and treatment processes. Provides facility management guidance in absence of facility manager. Assists facility management in providing quality service to all customers while maintaining compliance with regulatory requirements. Assists in maintaining positive community relations.

QUALIFICATIONS: Minimum four technical or business degree or from an accredited college or university, or equivalent. Three to five years experience or equivalent involving explosive/reactive operations. Experience in hazardous waste industry preferred.

SPECIFIC DUTIES:

1. Manages daily activities of explosive/reactive treatment operations of the Colfax Facility.
2. Writes procedures (SOP's) for all explosive/reactive operations.
3. Provides specialized professional services for preparing and packing explosives/reactives for shipment from various customer locations.
4. Provides facility management guidance in the absence of Facility Manager.
5. Assists Facility Manager in developing plans, goals and objectives and strategies for achievement.
6. Assists Facility Manager in maintaining compliance with all regulatory requirements.

7. Assists Facility Manager in maintaining a safe and healthful working and living environment for all employees, visitors, and surrounding community.

8. Assists Facility Manager in maintaining a positive image and relationship with the local community.

9. Manages and conducts special projects as assigned.

POSITION TITLE: Office Supervisor
FACILITY/DEPARTMENT: Colfax, LA/Administration Facility No. 540
REPORTS DIRECTLY TO: Facility Manager

I. BASIC PURPOSE:

Manages all aspects of administrative office functions and staff by overseeing daily routines and supervising staff activities to maintain a professional and efficient operation.

II. PRINCIPAL ACCOUNTABILITIES:

DEPARTMENTAL FUNCTION:

1. Supervises the overall administrative activities of the facility by reviewing the status of various projects and on going activities, and offering advice, guidance, and direction on accomplishing objectives to increase productivity and maintain standards.
2. Supervises staff by interviewing and hiring applicants, training, appraising employee performance, initiating various employee action, and by overseeing and directing their activities, to maintain productivity and employee relations.
3. Controls administrative costs by reviewing budget goals and monitoring and approving expenditures against those goals.
4. Schedules interviews of prospective employees with supervisors, arranges travel, and completes reference checks.
5. Schedules all facility training, i.e., 24/40 hour, 8 hour supervisor, initial orientation, etc., and assists in conducting on-site training as required.
6. Processes and prepares payroll for all facility personnel. Prepares overtime reports for the facility manager.
7. Set-up and maintain personnel files for all facility employees.
8. Set-up and maintain Health, Safety, and Environmental files, policies/procedures and associated reporting requirements.
9. Coordinates all facility travel arrangement.

10. Conducts special projects as assigned by facility manager.

11. Sorts and distributes all incoming and outgoing mail.

12. Performs other duties assigned by the facility manager.

III. POSITION REQUIREMENTS:

MINIMUM EDUCATION/EXPERIENCE:

High school diploma or equivalent academic training and experience required. Associate degree in business preferred. four to five years increasingly responsible administrative experience required. Supervisory experience preferred.

KNOWLEDGE, SKILLS AND ABILITIES:

Supervisory, administrative, and management skills. Ability to prioritize work. Must be thoroughly familiar with Laidlaw and facility procedures and policies. Must possess good written and verbal communication skills and be able to work well with others. general knowledge of accounting helpful.

PHYSICAL SKILLS AND EFFORT:

Not applicable

EQUIPMENT USED:

General Office Equipment
Computer Network
Switchboard

WORKING CONDITIONS:

Office environment that is well lit and ventilated.

LAIDLAW ENVIRONMENTAL SERVICES, INC., COLFAX, LA
FACILITY #540

JOB DESCRIPTION

POSITION TITLE: CUSTOMER SERVICE REPRESENTATIVE
REPORTS TO: OFFICE SUPERVISOR

I. BASIC PURPOSE

Maintain customer files and coordinate all correspondence and contacts with customers.

II. PRINCIPAL ACCOUNTABILITIES

Checks with corporate office regarding customer credit.
Maintains all customer files.
Coordinates profile amendments.
Notifies Administration of any profile discrepancies.
Coordinates profiles within facility system.
Coordinates all profile recertifications.
Compiles all quote letters.
Follows up with all quote letters with customers and documents all responses.
Reviews all profiles and quotes for completeness and accuracy.
Coordinates incoming calls concerning inquiries about the facility from potential customers.
Notifies and assists customers with completion of manifest and necessary manifest backup documentation.
Performs other duties as assigned by supervisor.

III. POSITION REQUIREMENTS

Minimum Education/Experience

High School Diploma, Associate degree in business or equivalent academic training or experience preferred, three (3) years customer service or equivalent experience required.

Special Skills and Abilities

Must possess a good attitude, ability to communicate written and verbally, good computer skills/knowledge, and good organizational skills and neatness. Acquire training in facility acceptance parameters and manifest/profile completion/procedures.

Equipment Used

General office supplies, computer, 10-key calculator, copier, telecopier, etc.

Working Conditions

General office environment that is well lit and ventilated.

LAIDLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT), INC.
COLFAX, LA, FACILITY #540

JOB DESCRIPTION

POSITION TITLE: EXPLOSION TECHNICIAN FOREMAN

REPORTS TO: FACILITY MANAGER

BASIC FUNCTIONS: Supervises Explosive Technicians during preparation and treatment of energetic materials such as explosive/reactive waste.

QUALIFICATIONS: Minimum Education/Experience
High School Diploma, previous explosive or hazardous waste experience required, valid driver's license.

Special Skills and Abilities
Must possess a good attitude, ability to communicate written and verbally, good organizational skills and neatness. Completed training in facility acceptance parameters and procedures.

Equipment Used
Forklift, tractor and associated equipment, weed eater, service vehicle, 4-wheeler, power saws, chain saws, general office equipment.

Working Conditions
Medium work-occasionally lifts or moves objects weighing up to 50 pounds and/or frequently lifts or moves objects weighing up to 25 pounds.

SPECIFIC DUTIES:

1. Oversee maintenance and equipment associated with operations of explosive/reactive waste handling, storage and treatment.
2. Conducts inspections and inventories of explosive/reactive waste according to established procedures.
3. Maintains required records for proper record keeping of explosive/reactive waste according to established procedures.
4. Operates and maintains communications, monitoring, alarm and security systems.
5. Provides direction on incoming explosive/reactive waste shipments, storage, and compatibility.
6. Oversees preparation and loading of thermal treatment burners with explosive/reactive waste for treatment and disposal.
7. Maintain and utilize personal protective equipment according to established procedures.
8. Performs additional responsibilities as assigned by supervisor.

LIDLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT), INC.
COLFAX, LA, FACILITY #540

JOB DESCRIPTION

POSITION TITLE: EXPLOSION TECHNICIAN

I. BASIC PURPOSE

Preparation and treatment of explosive/reactive waste.

II. PRINCIPAL ACCOUNTABILITIES

1. Operates and maintains equipment associated with operations of explosive/reactive waste handling, storage and treatment.
2. Conducts inspections and inventories of explosive/reactive waste according to established procedures.
3. Maintains required records for proper record keeping of explosive/reactive waste according to established procedures.
4. Operates and maintains communications, monitoring, alarm and security systems.
5. Loads and unloads incoming explosive/reactive waste shipments, separates and stores according to compatibility.
6. Prepares and loads thermal treatment burners with explosive/reactive waste for treatment.
7. Maintain and utilize personal protective equipment according to established procedures.
8. Performs additional responsibilities as assigned by supervisor.

III. POSITION REQUIREMENTS

Minimum Education/Experience

High School Diploma, previous explosive or hazardous waste experience preferred, valid driver's license.

Special Skills and Abilities

Must possess a good attitude, ability to communicate written and verbally, good organizational skills and neatness. Acquire training in facility acceptance parameters and procedures.

Equipment Used

Forklift, tractor and associated equipment, weed eater, service vehicle, 4-wheeler, power saws, chain saws, general office equipment.

Working Conditions

Medium work-occasionally lifts or moves objects weighing up to 50 pounds and/or frequently lifts or moves objects weighing up to 25 pounds.

APPENDIX 6

INSURANCE POLICY AND CERTIFICATES



October 28, 1997

**CERTIFIED MAIL #Z 450 264 359
RETURN RECEIPT REQUESTED**

Mr. Shan Shatzle
Louisiana Department of Environmental Quality
Office of Solid and Hazardous Waste Management
7290 Bluebonnet
H.B. Garlock Bldg., 5th Floor
Baton Rouge, Louisiana 70810

RE: Certificate of Liability Insurance
Laidlaw Environmental Services (Thermal Treatment), Inc.
Colfax, Louisiana
EPA ID# LAD 981 055 791

Dear Mr. Shatzle:

Please find enclosed an original Hazardous Waste Facility Certificate of Liability Insurance as required by LAC 33:V.3715. The Certificate, effective October 1, 1997, is issued by Reliance National Indemnity Company of Philadelphia, PA under policy number NTL 1632647 and replaces the existing Certificate issued by National Union Fire Insurance Company of Pittsburgh, PA under policy number PRM 7063121. Upon approval and acceptance of the enclosed Certificate, please return the existing Certificate to my attention at the address below.

Thank you for your time and assistance. Should you have any questions regarding the Certificate, please call me at (803) 933-4306.

Sincerely,

A handwritten signature in cursive script that reads "Cindy Taylor".

Cindy Taylor
Corporate Compliance Coordinator

/ct

Enclosure

cc: Phil Retallick, Laidlaw - Columbia, SC
Lin Longshore, Laidlaw - Columbia, SC
Tim Kent, Laidlaw - Houston, TX
Jim Gallion, Laidlaw - Colfax, LA

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

1. Reliance National Indemnity Company (the "Insurer"), of 4 Penn Center Plaza, Philadelphia, PA 19103 hereby certifies that it has issued liability insurance covering bodily injury and property damage to Laidlaw Environmental Services (Thermal Treatment), Inc., the ("insured"), of Post Office Box 482, Colfax, Louisiana 71417 in connection with the insured's obligation to demonstrate financial responsibility under LAC 33:V.3715 of the Louisiana Hazardous Waste Regulations (LHWR). The coverage applies at LAD 981 055 791, Laidlaw Environmental Services (Thermal Treatment), Inc., Post Office Box 482, Colfax, Louisiana 71417 for sudden accidental occurrences the limits of liability are \$1,000,000.00 each occurrence and \$2,000,000.00 annual aggregate. For nonsudden accidental occurrences the limits of liability are \$3,000,000.00 each occurrence and \$6,000,000.00 annual aggregate, exclusive of legal defense costs. The coverage is provided under policy number NTL 1632647, issued on October 1, 1997. The effective date of said policy is October 1, 1997.
2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:
 - (a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.
 - (b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in LAC 33:V.3715.F of the LHWR.
 - (c) Whenever requested by the administrative authority, the Insurer agrees to furnish to the administrative authority a signed duplicated original of the policy and all endorsements.
 - (d) Cancellation of the insurance, whether by the Insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility, will be effective only upon written notice and only after the expiration of 60 days after a copy of such written notice is received by the administrative authority.
 - (e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty days after the copy of such written notice is received by the administrative authority.

I hereby certify that the wording of the instrument is identical to the wording specified in LAC 33:V.3719.J of the LHWR as such regulation was constituted on the date this certificate was issued as indicated below, and that the Insurer is licensed to transact business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States, and is authorized to conduct insurance business in the State of Louisiana.


[Signature of authorized representative of Insurer]

[Name] MR. TIMOTHY J. DONNELLON

[Title] ASSISTANT VICE PRESIDENT, ENVIRONMENTAL FACILITIES

Authorized Representative of:

Reliance National Indemnity Company
4 Penn Center Plaza, Philadelphia, PA 19103

DATE OF ISSUANCE: October 1, 1997

ACORD CERTIFICATE OF LIABILITY INSURANCE

DATE REISSUED/

04/17/97

PRODUCER

MIMS INTERNATIONAL, LTD.
901 DULANEY VALLEY RD # 610
TOWSON MD 21204

MARY CLAIRE GOFF

Phone No. 410-296-1500 Fax No. 410-296-1741

INSURED

LAIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.
3763 HIGHWAY 471
COLFAX, LA 71417THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION
ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE
HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR
ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

COMPANIES AFFORDING COVERAGE

COMPANY

A

NATIONAL UNION FIRE INS. CO.

COMPANY

B

INSURANCE CO OF THE ST. OF PA.

COMPANY

C

COMPANY

D

COVERAGE

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD
INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS
CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS,
EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY	RMGL1437718	09/01/96	09/01/97	GENERAL AGGREGATE \$10,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY				PRODUCTS - COMPROP AGG \$5,000,000
	<input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR				PERSONAL & ADV INJURY \$5,000,000
	<input type="checkbox"/> OWNER'S & CONTRACTOR'S PROT				EACH OCCURRENCE \$5,000,000
					FIRE DAMAGE (Any one Act) \$1,000,000
A	AUTOMOBILE LIABILITY	RMCA1438747	09/01/96	09/01/97	MED EXP (Any one Person) \$5,000
	<input checked="" type="checkbox"/> ANY AUTO				COMBINED SINGLE LIMIT \$5,000,000
	<input checked="" type="checkbox"/> ALL OWNED AUTOS				BODILY INJURY (Per Person) \$
	<input checked="" type="checkbox"/> SCHEDULED AUTOS				BODILY INJURY (Per Occurrence) \$
	<input checked="" type="checkbox"/> HIRED AUTOS				PROPERTY DAMAGE \$
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT \$
	<input type="checkbox"/> ANY AUTO				OTHER THAN AUTO ONLY:
					EACH ACCIDENT \$
					AGGREGATE \$
					EACH OCCURRENCE \$
	EXCESS LIABILITY				AGGREGATE \$
	<input type="checkbox"/> UMBRELLA FORM				
	OTHER THAN UMBRELLA FORM				
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	RMWC1131827	09/01/96	09/01/97	<input checked="" type="checkbox"/> NO STATUTORY LIMIT <input type="checkbox"/> OTHER \$
	<input type="checkbox"/> THE PROPRIETOR/ PARTNER/EXECUTIVE OFFICERS ARE				EL EACH ACCIDENT \$5,000,000
	<input checked="" type="checkbox"/> INCL EXCL				EL DISEASE - POLICY LIMIT \$5,000,000
	OTHER				EL DISEASE - EA EMPLOYEE \$5,000,000
A	POLLUTION LEGAL LIABILITY	RMGL1437721	09/01/96	09/01/97	\$5 MIL. EACH LOSS \$10 MIL. ALL LOSSES

DESCRIPTION OF OPERATION/LOCATION/VEHICLE/SPECIAL ITEMS

SAMPLE CERTIFICATE

CERTIFICATE HOLDER

SAMPLE1

--SAMPLE COPY ONLY--

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE
EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL endeavor TO MAIL
30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT.
BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO CANCELLATION OR LIABILITY
OF ANY KIND UPON THE COMPANY, ITS AGENTS OR EMPLOYEES.AUTHORIZED SIGNATURE
MARY CLAIRE GOFF

ACORD 26-9 (7/95)

ACORD CORPORATION 1995

APPENDIX 7

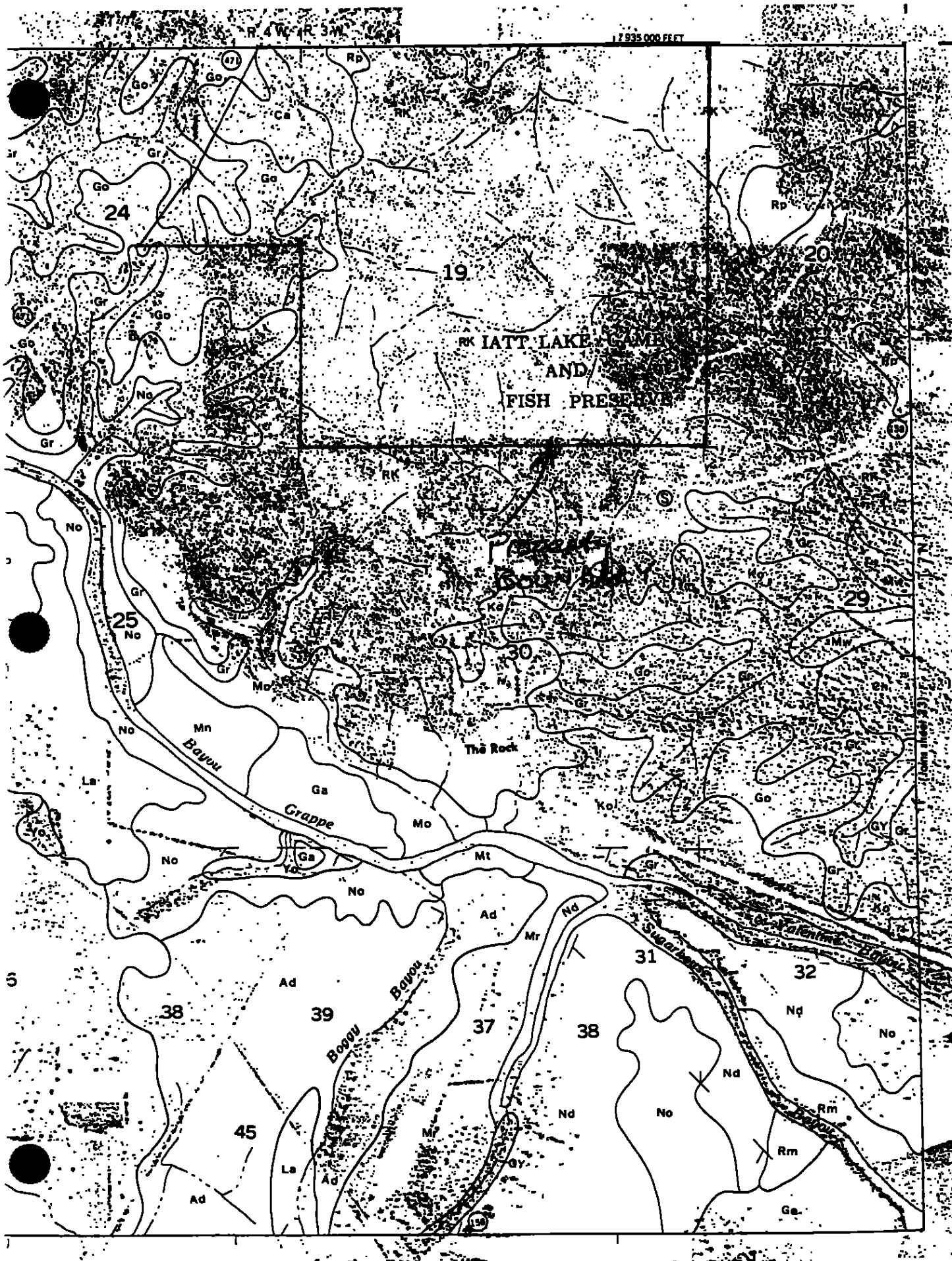
USDA - SCS DESCRIPTIONS AND SOIL TYPES

 United States
Department of
Agriculture
 Soil
Conservation
Service

In cooperation with
Forest Service
the Louisiana
Agricultural
Experiment Station
and the Louisiana
State Soil and
Water Conservation
Committee

Soil Survey of Grant Parish, Louisiana





This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1980 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

SOIL LEGEND

The first letter, always a capital, is the initial letter of the soil name. The second letter is a capital if the mapping unit is broadly defined 1/; otherwise, it is a small letter. Map units without slope designation have the percent slope given in the map unit description.

1/ The composition of these units is more variable than that of others in the survey area but has been controlled well enough to be interpreted for the expected use of the soils.

SYMBOL	NAME
Ad	Armistead clay
Br	Briley loamy fine sand, 5 to 12 percent slopes
Ca	Caddo silt loam
Cd	Cadeville very fine sandy loam, 2 to 5 percent slopes
Ce	Cadeville very fine sandy loam, 5 to 12 percent slopes
Ch	Cahaba fine sandy loam, 1 to 3 percent slopes
Ga	Gallion silt loam
Gb	Gallion silty clay loam
Gc	Gallion silt loam, occasionally flooded
Gn	Glenmore silt loam, 1 to 3 percent slopes
Go	Gore silt loam, 1 to 5 percent slopes
Gr	Gore silt loam, 5 to 12 percent slopes
Gu	Guyton silt loam
GY	Guyton and Cascilla soils, frequently flooded
Ko	Kolin silt loam, 1 to 3 percent slopes
La	Latanier clay
Ma	Malbis fine sandy loam, 1 to 5 percent slopes
Me	Mayhew silty clay loam
Mf	Metcalf very fine sandy loam
Mn	Moreland silt loam, overwash
Mo	Moreland silty clay loam
Mr	Moreland clay
Mt	Moreland clay, gently undulating
Mw	Moreland clay, occasionally flooded
Nd	Norwood silt loam
Ne	Norwood silty clay loam
Nr	Norwood silt loam, gently undulating
Pt	Pits, gravel
RK	Rigoletta-Kisatchie association, hilly
Rm	Roxana very fine sandy loam
Rn	Roxana very fine sandy loam, occasionally flooded
Ro	Roxana very fine sandy loam, frequently flooded
Rp	Ruston fine sandy loam, 1 to 5 percent slopes
RR	Ruston-Cadeville association, moderately rolling
RS	Ruston-Smithdale association, moderately rolling
Sm	Smithdale fine sandy loam, 5 to 12 percent slopes
St	Sumter Variant silty clay loam, 1 to 5 percent slopes
Un	Una silty clay, frequently flooded
Uo	Urbo Variant silty clay loam, occasionally flooded
Va	Vaiden silty clay, 1 to 5 percent slopes
Yo	Yorktown silty clay

conserve moisture and control erosion. Most crops respond well to additions of fertilizer and lime.

This soil is moderately well suited to pasture. Droughtiness, slope, low fertility, and the hazard of erosion are the main limitations. Pasture plants are difficult to establish because of droughtiness. Suitable pasture plants are improved bermudagrass, weeping lovegrass, bahiagrass, and crimson clover. Applications of fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is well suited to woodland. The potential for pine trees is moderately high. Traction is poor when the surface layer of this soil is dry, and seedling mortality is generally moderately high because of droughtiness. Conventional methods of harvesting trees can be used.

This soil is moderately well suited to urban uses. Steepness of slopes and the hazard of erosion are the main limitations. Cutbanks of shallow excavations cave easily. Preserving the existing plant cover during construction helps to control erosion. Plant cover can be established and maintained by properly fertilizing, seeding, mulching, and shaping of slopes.

This soil is moderately well suited to recreational development. Steepness of slope and the sandy surface layer are the main limitations. Cuts and fills should be seeded or mulched. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining adequate plant cover.

This Briley soil is in capability subclass IVe and woodland group 3s.

Ca—Caddo silt loam. This level, poorly drained soil is on broad flats in the terrace uplands. Areas range from about 30 acres to 500 acres. Slopes range from 0 to 1 percent.

Typically, the surface layer is grayish brown, very strongly acid silt loam about 4 inches thick. The subsurface layer is about 17 inches thick. It is grayish brown, strongly acid silt loam in the upper part and light brownish gray, strongly acid silt loam in the lower part. The subsoil to a depth of about 80 inches is light brownish gray, mottled, strongly acid silty clay loam in the upper and middle parts and gray, mottled, very strongly acid silty clay loam in the lower part.

Included with this soil in mapping are a few small areas of Glenmora and Guyton soils. These areas make up about 10 percent of the map unit. Glenmora soils are on more sloping positions than Caddo soil and are redder throughout. Guyton soils are on lower positions and do not have red mottles in the subsoil.

This Caddo soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a slow rate. Water runs off the surface at a slow rate and stands in low places for short periods after heavy rains. A seasonal high water table fluctuates between a depth of 2 feet and the surface from December through April.

This soil is slow to dry out in the spring; however, crops suffer from lack of water during dry periods in the summer and fall of most years. The shrink-swell potential is low.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is moderately well suited to cultivated crops. The main crops are corn and soybeans. Wetness is the main limitation. Potentially toxic levels of exchangeable aluminum within the rooting zone are also a limitation. A drainage system is needed for most cultivated crops and pasture plants. Land grading and smoothing improves the surface drainage and permits more efficient use of farm equipment. Surface crusting and soil compaction can be reduced by returning crop residue to the soil. Crops respond well to additions of lime and fertilizer, which help to overcome low fertility and reduce the high levels of exchangeable aluminum.

This soil is well suited to pasture. Wetness and low fertility are the main limitations. Suitable pasture plants are common bermudagrass, bahiagrass, ryegrass, tall fescue, white clover, and southern winterpeas. Grazing when the soil is wet results in compaction of the surface layer. The use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture and the soil in good condition. Applications of fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is well suited to woodland. The potential for pine trees is high; however, the use of equipment is limited, and seedling mortality is generally moderately high because of wetness. Reforestation after harvesting needs to be carefully managed to reduce competition from undesirable understory plants.

This soil is poorly suited to urban uses. Wetness is the main limitation. Excess water can be removed by using shallow surface ditches and by proper grading. Slow permeability and the high water table increase the possibility of failure of septic tank absorption fields.

This soil is poorly suited to recreational development. Wetness is the main limitation. Good surface drainage should be provided for intensively used areas, such as playgrounds.

This Caddo soil is in capability subclass IIIw and woodland group 2w.

Cd—Cadeville very fine sandy loam, 2 to 5 percent slopes. This gently sloping, moderately well drained soil is on ridgetops and upper side slopes in the terrace uplands. Areas range from about 20 acres to 350 acres.

Typically, the surface layer is dark grayish brown, extremely acid very fine sandy loam about 3 inches thick. The subsurface layer is brown, very strongly acid very fine sandy loam about 3 inches thick. The subsoil is yellowish red, mottled, extremely acid clay in the upper part; red, mottled, extremely acid clay in the middle part; and light brownish gray, mottled, extremely acid clay in

by using proper engineering designs and by backfilling with material that has low shrink-swell potential. Excess water can be removed by using surface ditches and by proper grading.

This soil is well suited to recreational development. It has few limitations for this use.

This Gallion soil is in capability subclass 1lw and woodland group 2o.

Gc—Gallion silt loam, occasionally flooded. This level, well drained soil is on natural levees of the Red River and its distributaries. It is not protected by manmade levees and floods occasionally. Areas range from about 20 acres to 400 acres. Slope is dominantly less than 1 percent.

Typically, the surface layer is dark grayish brown, medium acid silt loam about 9 inches thick. The subsoil is yellowish red, medium acid silt loam in the upper part and reddish brown, slightly acid silt loam in the lower part. The underlying material to a depth of about 65 inches is yellowish red, mildly alkaline very fine sandy loam.

Included with this soil in mapping are a few small areas of Moreland and Roxana soils. These areas make up about 10 percent of the map unit. Moreland soils are on lower positions than Gallion soils and are in depressional areas. They have more clay throughout than Gallion soils. Roxana soils are on higher positions on the natural levees and have more sand and slightly less clay throughout.

This Gallion soil has medium fertility. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. Adequate water is available to plants in most years. This soil is not adequately protected from flooding. It may flood occasionally on a yearly basis, as well as during the cropping season. This soil has moderate shrink-swell potential.

Most of the acreage of this soil is in pasture. A small acreage is used for cultivated crops.

This soil is well suited to pasture. Suitable pasture plants are improved bermudagrass, common bermudagrass, bahiagrass, ryegrass, tall fescue, and white clover. Grazing when the soil is wet results in compaction of the surface layer, poor tilth, and excessive runoff. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture and the soil in good condition. Applications of fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is moderately well suited to cultivated crops. It is limited mainly by occasional overflow. In some years crops are damaged by flooding late in spring. Suitable crops are soybeans, grain sorghum, corn, and wheat. Land grading and smoothing improves surface drainage and permits more efficient use of farm equipment. A tillage pan forms easily if this soil is tilled when wet; however, chiseling or subsoiling can be used to break up

the tillage pan. Tilth and fertility can be improved by returning crop residue to the soil.

This soil is well suited to woodland. The potential for hardwood trees is high; however, few areas remain in woodland.

This soil is poorly suited to urban uses. Wetness caused by flooding is the main limitation. Large earthen levees are needed to protect this soil from overflows from the Red River.

This soil is moderately well suited to recreational development. Flooding is the main limitation. Protection from flooding is needed.

This soil is in capability subclass 2w and woodland group 2o.

Gn—Glenmora silt loam, 1 to 3 percent slopes. This very gently sloping, moderately well drained soil is on broad ridges and on side slopes along drainageways in the terrace uplands. Areas range from about 150 acres to 400 acres.

Typically, the surface layer is dark grayish brown, strongly acid silt loam about 5 inches thick. The subsurface layer is brown, medium acid silt loam about 4 inches thick. The subsoil is yellowish brown, medium acid silt loam and silty clay loam in the upper part. The next layer is light brownish gray, mottled, medium acid silty clay loam, and below that is gray and yellowish brown, mottled, medium acid silty clay loam to a depth of about 60 inches. The underlying material to a depth of about 80 inches is yellowish red, mottled, medium acid silty clay.

Included with this soil in mapping are a few small areas of Caddo and Guyton soils. These areas make up about 10 percent of the map unit. The poorly drained Caddo and Guyton soils are on broad flats and in depressional areas and are gray throughout.

This Glenmora soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a slow rate. A seasonal high water table is at a depth of about 2 to 3 feet from December to April. Plants are damaged by lack of water during dry periods in summer and fall of some years. This soil has moderate shrink-swell potential in the upper part of the subsoil and high shrink-swell potential in the lower part.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is well suited to woodland. The potential is high for pine trees. Use of equipment is somewhat limited because of wetness. Roads and landings can be protected from erosion by constructing diversions and by seeding cuts and fills. Conventional methods of harvesting timber generally can be used, but their use may be limited during rainy periods. These rainy periods are generally from December to April. Competing vegetation can be controlled by proper site preparation

and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is well suited to pasture. Low fertility and the hazard of erosion are the main limitations. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, tall fescue, vetch, and white clover. Where it is practical, seedbeds should be prepared on the contour or across the slope. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. Applications of fertilizer and lime are needed for optimum growth of grasses and legumes.

This soil is well suited to cultivated crops. The main crops are soybeans, corn, and small grains. Low fertility, the hazard of erosion, and potentially toxic levels of exchangeable aluminum within the rooting zone are the main limitations. This soil is friable and easy to keep in good tilth. It can be worked over a wide range of moisture content. Excessive cultivation can result in the formation of a tillage pan, but this pan can be broken by subsoiling when the soil is dry. The use of minimum tillage and returning all crop residue to the soil or regularly adding other organic matter improve fertility and help to maintain soil tilth and content of organic matter. Crops respond well to additions of lime and fertilizer, which help to overcome low fertility and reduce the high levels of exchangeable aluminum. The use of minimum tillage and the construction of terraces, diversions, and grassed waterways help to control erosion. All tillage should be done on the contour or across the slope.

This soil is moderately well suited to urban uses. Wetness and slow permeability are the main limitations. Excess water can be removed by constructing shallow ditches and by proper grading. Slow permeability and the seasonal high water table increase the possibility of failure of septic tank absorption fields. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. The use of sandy backfill for the trench and long absorption lines helps to compensate for the slow permeability.

This soil is moderately well suited to recreational uses. Wetness and slow permeability are the main limitations. Good drainage should be provided for intensively used areas, such as playgrounds.

This Glenmora soil is in capability subclass IIE and woodland group 2w.

Go—Gore silt loam, 1 to 5 percent slopes. This gently sloping, moderately well drained soil is in the terrace uplands. Areas range from about 30 acres to 400 acres.

Typically, the surface layer is dark brown, medium acid silt loam about 4 inches thick. The subsurface layer is brown, strongly acid silt loam about 3 inches thick. The subsoil is strong brown, mottled, strongly acid silty clay loam in the upper part; yellowish red, mottled, very strongly acid silty clay in the middle part; and light

brownish gray and gray, mottled, very strongly acid and strongly acid silty clay and clay in the lower part. The underlying material to a depth of about 65 inches is yellowish red, mottled, medium acid clay.

Included with this soil in mapping are a few small areas of Guyton and Kolin soils. These areas make up about 25 percent of the map unit. Guyton soils are in depressional areas and are loamy throughout. Kolin soils are on slightly higher ridges and are loamy in the upper part of the subsoil.

This Gore soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a very slow rate. Water runs off the surface at a medium rate. This soil has high shrink-swell potential in the subsoil. Adequate water is available to plants in most years.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is moderately well suited to woodland. The potential for pine trees is moderately high. Restricted use of equipment and seedling mortality are the main concerns in producing and harvesting timber. Proper site preparation is needed to offset initial plant competition, and spraying can be used to control the subsequent growth of weeds. Maintaining a proper cutting cycle helps to overcome the limitations to use of equipment during wet periods of the year.

This soil is poorly suited to cultivated crops. Low fertility, the hazard of erosion, and potentially toxic levels of aluminum within the rooting zone are the main limitations. The main crops are soybeans and corn. This soil is easy to work, but it is difficult for crop roots to penetrate the subsoil. The use of minimum tillage and the construction of terraces, diversions, and grassed waterways help to control erosion. Crops respond well to additions of lime and fertilizer, which help to overcome low fertility and reduce the high levels of aluminum.

This soil is well suited to pasture. Low fertility is the main limitation. Erosion is a hazard during the establishment of pasture plants. Suitable pasture plants are bahiagrass, common bermudagrass, improved bermudagrass, coastal bermudagrass, ball clover, and crimson clover. Where it is practical, seedbeds should be prepared on the contour or across the slope. Proper grazing practices, weed control, and additions of fertilizer are needed to produce maximum quality forage.

This soil is poorly suited to urban uses. A clayey subsoil, very slow permeability, and high shrink-swell potential are the main limitations. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential. Very slow permeability increases the possibility of failure of septic tank absorption fields. This limitation can be overcome to some extent, however, by increasing the size of the absorption field.

This soil is moderately well suited to recreational development. Very slow permeability is the main limitation. The hazard of erosion is a concern in areas where paths and trails are developed.

This Gore soil is in capability subclass IVe and woodland group 3c.

Gr—Gore silt loam, 5 to 12 percent slopes. This moderately sloping and strongly sloping, moderately well drained soil is on side slopes in the terrace uplands. Areas range from about 15 acres to 200 acres.

The surface layer is dark brown, medium acid silt loam about 4 inches thick. The subsurface layer is pale brown, medium acid very fine sandy loam about 5 inches thick. The subsoil is red, mottled, very strongly acid and strongly acid silty clay in the upper part; light brownish gray, very strongly acid silty clay in the next part; yellowish red, very strongly acid silty clay below that; and yellowish red, medium acid clay in the lower part. The underlying material to a depth of about 80 inches is yellowish red, mottled, medium acid clay.

Included with this soil in mapping are a few small areas of Guyton and Kolin soils. These areas make up about 10 percent of the map unit. Guyton soils are in drainageways and have less clay in the subsoil than Gore soil. Kolin soils are on higher lying ridges and have less clay in the upper part of the subsoil.

This Gore soil has low fertility and high levels of exchangeable aluminum that are potentially toxic to most crops. Water and air move through this soil at a very slow rate. Water runs off the surface at a rapid rate. This soil has high shrink-swell potential in the subsoil. Plants are damaged by lack of water during dry periods in summer and fall of some years.

Most of the acreage of this soil is in woodland. A small acreage is in pasture.

This soil is moderately well suited to woodland. The potential for pine trees is moderately high. Restricted use of equipment and seedling mortality are the main concerns in producing and harvesting timber. Hand planting of nursery stock is often necessary to establish or improve a stand. Because the clayey soil is sticky when wet, planting and harvesting should be done during dry periods.

This soil is generally poorly suited to cultivated crops. The hazard of erosion is usually too severe for this use.

This soil is moderately well suited to pasture. Steep slopes and the severe hazard of erosion are the main limitations. The use of equipment is limited somewhat by steep slopes. Suitable pasture plants are bahiagrass, common bermudagrass, ball clover, and crimson clover. Proper grazing practices, weed control, and additions of fertilizer are needed to produce maximum quality forage.

This soil is poorly suited to urban uses. The clayey subsoil, high shrink-swell potential, and slope are the main limitations. Erosion is a hazard in the steeper areas. Only that part of the site that is used for

construction should be disturbed. Revegetating disturbed areas around construction sites as soon as possible helps to control erosion. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential. The limitation of very slow permeability can be overcome to some extent by increasing the size of septic tank absorption fields.

This soil is moderately well suited to recreational development. Slope and very slow permeability are the main limitations. Paths and trails should extend across the slope. Plant cover can be maintained by controlling traffic.

This Gore soil is in capability subclass VIe and woodland group 3c.

Gu—Guyton silt loam. This level, poorly drained soil is on broad flats and in depressional areas in the terrace uplands. Areas range from about 20 acres to 200 acres. Slope is dominantly less than 1 percent.

The surface layer is grayish brown, very strongly acid silt loam about 6 inches thick. The subsurface layer is about 18 inches thick. It is light brownish gray, mottled, strongly acid silt loam in the upper part and light gray, mottled, strongly acid silt loam in the lower part. The subsoil to a depth of about 65 inches is grayish brown, mottled, strongly acid and very strongly acid silty clay loam in the upper and middle parts and light grayish brown, mottled, very strongly acid silt loam in the lower part.

Included with this soil in mapping are a few small areas of Caddo and Cahaba soils. These areas make up about 15 percent of the map unit. Caddo soils are on slightly higher positions than Guyton soil, and they have red mottles in the subsoil. Cahaba soils are also on higher positions. They have more sand throughout and are redder in the subsoil than Guyton soil.

This Guyton soil has low fertility and moderately high levels of exchangeable aluminum within the rooting zone that are potentially toxic to some crops. Water and air move through this soil at a slow rate. Water runs off the surface at a slow rate and stands in low places for short periods. A seasonal high water table fluctuates between a depth of about 1.5 feet and the surface from December through May. The surface layer of this soil remains wet for long periods after heavy rains. Adequate water is available to plants in most years. The shrink-swell potential is low.

Most of the acreage of this soil is in woodland. A small acreage is in pasture and cropland.

This soil is well suited to woodland. The potential for pine and hardwood trees is high. Restricted use of equipment and moderately high seedling mortality because of wetness are the main concerns in producing and harvesting timber. Machine planting is practical only in dry years. Conventional methods of harvesting timber generally can be used, but these methods are limited

and parking areas. The sand is used as a mixture for hot mix, concrete, and mortar sand. A mixture of sand, clay, and gravel, locally called "pitrun," is also used as building material.

Most areas of this map unit are bare of vegetation. Scattered trees and sparse stands of grass grow in a few of the abandoned pits.

Gravel pits are not suited to cropland, woodland, pasture, or to urban uses and recreational uses unless major reclamation is done.

Pits, gravel, is in capability subclass VII_s. It is not assigned to a woodland suitability group.

RK—Rigolette-Kisatchie association, hilly. The somewhat poorly drained Rigolette soil and the well drained Kisatchie soil are in the terrace uplands. The landscape is one of narrow ridgetops and moderately sloping to steep side slopes. It is dissected by many narrow drainageways. A few stones and boulders and outcrops of sandstone and siltstone are at the surface in most areas. Areas, which range from about 80 acres to 500 acres, are about 35 percent Rigolette soil and about 30 percent Kisatchie soil.

The Rigolette soil is on plane and concave side slopes and midslope benches. Slopes range from 5 to 15 percent. The Kisatchie soil is on convex, upper and lower side slopes. Slopes range from 5 to 30 percent.

The number of observations made in these areas was fewer than in other areas because steep slopes, depth to rock, and rock outcrops are major limitations to the use and management of these soils. For this reason, separation of the soils would be of little value to the land user. In addition, some areas are in an abandoned military bombing range site where use and management are severely limited because of the possibility of unexploded bombs. The detail in mapping, however, is adequate for the expected use of these soils.

Typically, the Rigolette soil has a surface layer of grayish brown, strongly acid loamy fine sand about 4 inches thick. The subsurface layer is light brownish gray, mottled, strongly acid loamy fine sand about 8 inches thick. The subsoil is light brownish gray, mottled, very strongly acid fine sandy loam in the upper part; gray, mottled, very strongly acid sandy clay loam in the middle part; and light gray, mottled, very strongly acid silty clay in the lower part. The underlying material to a depth of about 75 inches is light gray and light brownish gray, mottled, very strongly acid silty clay and clay. In places the underlying material has small to large fragments of sandstone or siltstone.

The Rigolette soil has low fertility and high levels of exchangeable aluminum within the rooting zone. Water and air move through the subsoil at a moderate rate and through the underlying material at a very slow rate. The underlying material is extremely hard when dry, and it remains dry most of the time. Water runs off the surface at a medium rate. A water table is perched upon the

clayey underlying material from December to April. Effective rooting depth ranges from about 20 to 40 inches. The subsoil has moderate shrink-swell potential. Plants are damaged because of lack of water during dry periods in summer and fall of most years.

Typically, the Kisatchie soil has a surface layer about 8 inches thick. It is very dark gray, very strongly acid very fine sandy loam in the upper part and dark grayish brown, very strongly acid very fine sandy loam in the lower part. The subsoil is grayish brown, very strongly acid clay loam in the upper part and pale brown, very strongly acid silty clay in the lower part. The underlying material to a depth of about 60 inches is olive, extremely acid sandstone.

The Kisatchie soil has low fertility and high levels of exchangeable aluminum within the rooting zone. Water and air move through the soil at a very slow rate. Runoff is rapid and very rapid. Effective rooting depth ranges from about 20 to 40 inches. The soil dries quickly after rains. It has high shrink-swell potential in the subsoil. Plants are damaged because of lack of water during dry periods in summer and fall of most years.

Included with these soils in mapping are many small areas of Briley, Cadeville, Ruston, and Smithdale soils. Cadeville soils are on plane and convex side slopes and are clayey throughout. Briley, Ruston, and Smithdale soils are on narrow ridgetops and upper side slopes and have less clay in the subsoil than Rigolette and Kisatchie soils. In places all of the included soils are underlain by large fragments of sandstone or siltstone at depths ranging from 30 to 50 inches below the surface. Also included are many small areas where sandstone or siltstone crops out at the surface. A few small seep areas that are very wet most of the time are on midslope benches. The included soils make up about 25 percent of the unit.

All of the acreage of these soils is in woodland. It is mainly in pine trees, but some areas are in mixed hardwood and pine stands.

These soils are poorly suited to woodland. They have low potential for pine trees. Moderate seedling mortality and a moderate hazard of erosion are the main concerns in producing and harvesting timber. The use of equipment is moderately limited in the steeper areas because of sandstone and siltstone outcrops and steepness of slopes. Trees are subject to windthrow because of limited rooting depth. Conventional methods of harvesting generally can be used, but wetness limits the use of equipment during the winter and spring in areas of the Rigolette soil. In those areas that are within the abandoned military bombing range site, the use of equipment for site preparation is limited because of the possibility of unexploded bombs. Reestablishment of trees after harvest is possible only by natural regeneration.

These soils are generally poorly suited to improved pasture, and they are not suited to improved pasture in

areas within the old military bombing range site. Low fertility, steep slopes, sandstone or siltstone outcrops, and limited choice of pasture plants are the main limitations. Suitable pasture plants are common bermudagrass and bahiagrass. Use of proper grazing practices, weed control, and additions of fertilizer are needed to produce maximum quality forage.

These soils are poorly suited to cultivated crops. They are limited mainly by steep slopes, sandstone or siltstone outcrops, low fertility, and low to moderate available water capacity. Cultivation is not feasible in areas that are within the military bombing range site because of the possibility of unexploded bombs.

These soils are poorly suited to urban uses. They are not suited to areas that are within the old military bombing range site. Steep slopes, rock outcrops, wetness, very slow permeability, and high shrink-swell potential are the main limitations. Erosion is a hazard in the steeper areas. Only that part of the site used for construction should be disturbed. Structures to divert runoff are needed if buildings and roads are to be constructed. Reestablishment of plants is difficult in areas that have had the surface layer removed and the subsoil exposed, but mulching and fertilizing the cut areas help to establish the plants. Seepage from sanitary facilities would be difficult to control because of the steepness of slopes. The effects of shrinking and swelling can be minimized by using proper engineering designs and by backfilling with material that has low shrink-swell potential.

These soils are poorly suited to recreational development. Wetness is a limitation in the Rigolette soil. Slope and very slow permeability are limitations in areas of both Rigolette and Kisatchie soils. Erosion and sedimentation can be controlled and the beauty of the area enhanced if adequate plant cover is maintained. Paths and trails should extend across the slope where possible. Drainage is needed if intensively used areas such as playgrounds are located on the Rigolette soil.

These Rigolette and Kisatchie soils are in capability subclass VIe and woodland suitability group 5d.

Rm—Roxana very fine sandy loam. This level, well drained soil is on natural levees of the Red River and its distributaries. Areas range from about 15 acres to 500 acres. Slope is dominantly less than 1 percent.

Typically, the surface layer is yellowish red, neutral very fine sandy loam about 6 inches thick. The underlying material to a depth of about 65 inches is yellowish red, moderately alkaline very fine sandy loam, loamy very fine sand, and silt loam. In places the surface layer is calcareous.

Included with this soil in mapping are a few small areas of Gallion, Latanier, Moreland, and Norwood soils. These areas make up about 10 percent of most mapped areas. Gallion soils are on slightly lower positions than Roxana soil, and they have a subsoil that is more acid.

Latanier and Moreland soils are on lower positions and have a more clayey subsoil. Norwood soils are on slightly lower positions and have more clay in the profile between depths of 10 and 40 inches.

This Roxana soil has high fertility. Water and air move through this soil at a moderate rate. Water runs off the surface at a slow rate. This soil dries quickly after rains. A seasonal high water table fluctuates between depths of about 4 and 6 feet from December to April. Plants are damaged because of lack of water during dry periods in summer and fall of some years. This soil has low shrink-swell potential.

Most of the acreage of this soil is used for cultivated crops. A small acreage is in pasture.

This soil is well suited to cultivated crops. The main crops are soybeans, cotton, corn, wheat, oats, and grain sorghum. This soil has few limitations. It is friable and easy to keep in good tilth and can be worked over a wide range of moisture content. Excessive cultivation can result in the formation of a tillage pan, but this pan can be broken by subsoiling when the soil is dry. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion.

This soil is well suited to pasture. It has few limitations for this use. Suitable pasture plants are improved bermudagrass, common bermudagrass, bahiagrass, ryegrass, tall fescue, and white clover. Use of proper stocking rates, pasture rotation, and restricted grazing during wet periods helps to keep the pasture and the soil in good condition. Fertility generally is sufficient for sustained production of high quality, nonirrigated pasture.

This soil is well suited to woodland. It has very high potential for hardwood trees. All areas, however, have been cleared for use as cropland and pastureland. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is moderately well suited to urban uses. It has few limitations for use as building sites and roads; however, wetness and moderate permeability are limitations if the soil is used for most sanitary facilities. Wetness and moderate permeability increase the possibility of failure of septic tank absorption fields, but these limitations can be overcome by increasing the length of the absorption lines.

This soil is well suited to recreational facilities, such as playgrounds, paths, picnic areas, and camp areas. It has few limitations for these uses.

This Roxana soil is in capability class I and woodland group 1o.

Rn—Roxana very fine sandy loam, occasionally flooded. This gently undulating, well drained soil is on the natural levee of the Red River. It is between the river channel and the protection levee and is subject to occasional flooding. Areas range from about 15 acres to 350 acres. The landscape is one of low parallel ridges

cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is moderately well suited to pasture. Flooding is the main limitation. The period of grazing and choice of pasture plants are limited because of flooding. A suitable pasture plant is common bermudagrass. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. During periods of flooding cattle need to be moved to adjacent protected areas or to pasture at a higher elevation.

This soil is generally not suited to cultivated crops. The hazard of flooding is too severe for this use.

This soil is generally not suited to urban and recreational uses. The hazard of flooding is too severe for these uses.

This Roxana soil is in capability subclass Vw and woodland group 10.

Rp—Ruston fine sandy loam, 1 to 5 percent slopes. This gently sloping, well drained soil is on narrow ridgetops in the terrace uplands. Areas range from about 10 acres to 350 acres.

Typically, the surface layer is about 4 inches thick. It is brown, strongly acid fine sandy loam. The subsurface layer is light yellowish brown, strongly acid fine sandy loam about 10 inches thick. The subsoil extends to a depth of about 75 inches. It is reddish brown, very strongly acid sandy clay loam in the upper part; yellowish red, very strongly acid fine sandy loam in the middle part; and red, very strongly acid sandy clay loam in the lower part.

Included with this soil in mapping are a few small areas of Briley, Malbis, and Smithdale soils. These areas make up about 10 percent of the map unit. Malbis soils are on the more nearly level parts of ridgetops. They have plinthite nodules in the subsoil. Smithdale soils are on steeper side slopes. They have less clay in the lower part of the subsoil than Ruston soil. Briley soils are mainly on some of the narrow ridgetops. They are sandy to a depth ranging from 20 to 40 inches below the surface.

This Ruston soil has low fertility and moderately high levels of exchangeable aluminum within the rooting zone that are potentially toxic to some crops. Water and air move through this soil at a moderate rate. Runoff is medium, and the hazard of water erosion is moderate. This soil dries quickly after rains. Plants are damaged because of lack of water during dry periods in summer and fall of some years. This soil has low shrink-swell potential.

Most of the acreage of this soil is in woodland. Small acreages are used for pasture and for cropland.

This soil is well suited to woodland. It has high potential for pine trees. This soil has few limitations for use and management. Management that minimizes the risk of erosion is important in harvesting timber.

Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling to eliminate unwanted weeds, brush, or trees.

This soil is well suited to pasture. Low fertility and the hazard of erosion when pasture plants are being established are the main limitations. Suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ball clover, and crimson clover. Additions of fertilizer and lime are needed for optimum growth of grasses and legumes. Seedbeds should be prepared on the contour or across the slope where it is practical. Rotation grazing helps to maintain the quality of forage.

This soil is moderately well suited to cultivated crops. The main crops are sweet potatoes, watermelons, soybeans, corn, and cotton. Low fertility, slope, and potentially toxic levels of exchangeable aluminum within the rooting zone are the main limitations. This soil is friable and easy to keep in good tilth. It can be worked over a wide range of moisture content. Crop residue left on or near the surface helps to conserve moisture, maintain tilth, and control erosion. The use of minimum tillage and the construction of terraces and grassed waterways also help to control erosion. Most crops respond well to additions of lime and fertilizer, which help to overcome the low fertility and moderately high levels of exchangeable aluminum.

This soil is moderately well suited to urban uses. Moderate permeability is a limitation if septic tank absorption fields are installed, but this limitation can be overcome by increasing the size of the absorption field. The hazard of erosion is a limitation in areas where buildings are constructed. Revegetating disturbed areas around construction sites as soon as possible helps to control soil erosion. Plant cover can be established and maintained by proper fertilizing, seeding, mulching, and shaping of the slopes.

This soil is well suited to recreational uses. It has few limitations. Erosion can be controlled and the beauty of the area enhanced if adequate plant cover is maintained.

This Ruston soil is in capability subclass IIIe and woodland group 20.

RR—Ruston-Cadeville association, moderately rolling. The well drained Ruston soil and the moderately well drained Cadeville soil are in the terrace uplands and are within an abandoned military bombing range site. The landscape is one of very gently sloping to gently sloping ridgetops and moderately sloping to strongly sloping side slopes. Areas, which range from 100 acres to 640 acres, are about 45 percent Ruston soil and about 40 percent Cadeville soil.

The Ruston soil is on convex ridgetops that are generally less than 300 feet wide. Slopes range from 1 to 5 percent. The Cadeville soil is on short, complex side slopes that are dissected by many short drainageways

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cm ³	In/hr	In/in	pH				Pct
Ad----- Armistead	0-14	40-55	1.20-1.35	0.06-0.2	0.18-0.20	6.1-8.4	High-----	0.32	5	2-4
	14-75	14-30	1.35-1.65	0.2-0.6	0.18-0.22	6.1-8.4	Low-----	0.37		
Br----- Briley	0-30	5-18	1.50-1.65	6.0-20	0.07-0.11	4.5-6.5	Low-----	0.20	5	<1
	30-65	15-35	1.55-1.69	0.6-2.0	0.13-0.17	4.5-6.0	Low-----	0.24		
Ca----- Caddo	0-21	14-27	1.35-1.70	0.6-2.0	0.18-0.23	4.5-6.0	Low-----	0.49	5	.5-2
	21-80	18-35	1.35-1.70	0.06-0.2	0.20-0.22	4.5-6.0	Low-----	0.37		
Cd----- Cadeville	0-6	10-22	1.30-1.65	0.6-2.0	0.14-0.22	3.6-6.0	Low-----	0.43	5	.5-1
	6-48	39-60	1.20-1.45	<0.06	0.18-0.20	3.6-5.5	High-----	0.32		
	48-65	30-60	1.20-1.65	<0.2	0.18-0.20	3.6-5.5	High-----	0.32		
Ce----- Cadeville	0-7	10-22	1.30-1.65	0.6-2.0	0.14-0.22	3.6-6.0	Low-----	0.43	5	.5-1
	7-42	39-60	1.20-1.45	<0.06	0.18-0.20	3.6-5.5	High-----	0.32		
	42-65	30-60	1.20-1.65	<0.2	0.18-0.20	3.6-5.5	High-----	0.32		
Ch----- Cahaba	0-8	7-17	1.35-1.60	2.0-6.0	0.10-0.14	4.5-6.0	Low-----	0.24	5	.5-2
	8-48	18-35	1.35-1.60	0.6-2.0	0.12-0.15	4.5-6.0	Low-----	0.28		
	48-65	4-20	1.40-1.70	2.0-20	0.05-0.10	4.5-6.0	Low-----	0.24		
Ga----- Gallion	0-8	14-27	1.35-1.65	0.6-2.0	0.21-0.23	5.6-7.3	Low-----	0.43	5	.5-2
	8-34	14-35	1.35-1.75	0.6-2.0	0.20-0.22	5.6-7.8	Moderate-----	0.32		
	34-65	14-35	1.35-1.75	0.6-2.0	0.20-0.23	6.1-8.4	Low-----	0.37		
Gb----- Gallion	0-6	27-35	1.35-1.65	0.6-2.0	0.20-0.22	5.6-7.3	Moderate-----	0.32	5	.5-2
	6-41	14-35	1.35-1.75	0.6-2.0	0.20-0.22	5.6-7.8	Moderate-----	0.32		
	41-65	14-35	1.35-1.75	0.6-2.0	0.20-0.23	6.1-8.4	Low-----	0.37		
Gc----- Gallion	0-9	14-27	1.35-1.65	0.6-2.0	0.21-0.23	5.6-7.3	Low-----	0.43	5	.5-2
	9-39	14-35	1.35-1.75	0.6-2.0	0.20-0.22	5.6-7.8	Moderate-----	0.32		
	39-65	14-35	1.35-1.75	0.6-2.0	0.20-0.23	6.1-8.4	Low-----	0.37		
Gn----- Glenmora	0-9	8-22	1.35-1.65	0.6-2.0	0.20-0.23	4.5-6.0	Low-----	0.49	5	.5-2
	9-30	18-35	1.35-1.65	0.6-2.0	0.18-0.20	4.5-6.0	Low-----	0.43		
	30-69	27-35	1.35-1.70	0.06-0.2	0.18-0.20	4.5-6.0	Moderate-----	0.43		
	69-80	35-45	1.35-1.70	0.06-0.2	0.14-0.20	4.5-6.0	High-----	0.37		
Go----- Gore	0-10	5-15	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low-----	0.49	5	.5-4
	10-57	40-60	1.30-1.75	<0.06	0.14-0.18	4.5-7.3	High-----	0.32		
	57-65	40-80	1.30-1.75	<0.06	0.14-0.18	4.5-8.4	High-----	0.32		
Gr----- Gore	0-9	5-15	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	Low-----	0.49	5	.5-4
	9-56	40-60	1.30-1.75	<0.06	0.14-0.18	4.5-7.3	High-----	0.32		
	56-80	40-80	1.30-1.75	<0.06	0.14-0.18	4.5-8.4	High-----	0.32		
Gu----- Guyton	0-24	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	Low-----	0.43	5	<2
	24-54	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	Low-----	0.37		
	54-65	20-35	1.35-1.70	0.06-2.0	0.15-0.22	3.6-8.4	Low-----	0.37		
GY*: Guyton	0-25	7-25	1.35-1.65	0.6-2.0	0.20-0.23	3.6-6.0	Low-----	0.43	5	<2
	25-50	20-35	1.35-1.70	0.06-0.2	0.15-0.22	3.6-6.0	Low-----	0.37		
	50-96	20-35	1.35-1.70	0.06-2.0	0.15-0.22	3.6-8.4	Low-----	0.37		
Cascilla-----	0-8	5-20	1.40-1.50	0.6-2.0	0.18-0.22	4.5-5.5	Low-----	0.43	5	1-3
	8-60	18-30	1.45-1.50	0.6-2.0	0.16-0.20	4.5-5.5	Low-----	0.43		
	60-80	5-25	1.40-1.50	0.6-2.0	0.16-0.20	4.5-5.5	Low-----	0.43		
Ko----- Kolin	0-6	10-27	1.35-1.65	0.6-2.0	0.18-0.22	5.1-6.5	Low-----	0.49	5	.5-2
	6-28	20-35	1.35-1.65	0.2-0.6	0.18-0.22	4.5-6.0	Moderate-----	0.37		
	28-74	40-55	1.20-1.65	<0.06	0.15-0.18	4.5-6.5	High-----	0.32		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	g/cm ³	In/hr	In/in	pH				Pct
La----- Latanier	0-6	40-55	1.20-1.70	<0.06	0.18-0.20	6.6-8.4	Very high----	0.32	5	.5-4
	6-34	40-55	1.20-1.70	<0.06	0.18-0.20	6.6-8.4	Very high----	0.32		
	34-65	10-27	1.30-1.65	0.06-2.0	0.18-0.22	6.6-8.4	Low-----	0.37		
Ma----- Malbis	0-6	10-25	1.35-1.70	0.6-2.0	0.10-0.15	4.5-6.0	Low-----	0.24	5	.5-1
	6-14	18-33	1.40-1.70	0.6-2.0	0.12-0.20	4.5-5.5	Low-----	0.28		
	14-43	20-35	1.40-1.70	0.6-2.0	0.12-0.17	4.5-5.5	Low-----	0.28		
	43-64	20-35	1.40-1.70	0.2-0.6	0.12-0.17	4.5-5.5	Low-----	0.28		
Me----- Mayhew	0-5	10-40	1.35-1.45	0.06-0.2	0.20-0.22	4.5-6.0	Moderate----	0.37	5	1-3
	5-35	35-60	1.20-1.55	<0.06	0.18-0.20	4.5-6.0	High-----	0.32		
	35-75	35-75	1.20-1.55	<0.06	0.18-0.20	4.5-6.0	High-----	0.32		
Mf----- Metcalf	0-4	8-22	1.35-1.65	0.6-2.0	0.12-0.18	3.6-6.0	Low-----	0.49	5	.5-2
	4-37	18-27	1.35-1.65	0.2-0.6	0.15-0.20	3.6-6.0	Low-----	0.37		
	37-75	40-60	1.20-1.55	<0.06	0.15-0.18	3.6-6.0	High-----	0.32		
Mn----- Moreland	0-11	18-27	1.40-1.65	0.6-2.0	0.21-0.23	6.1-7.8	Low-----	0.43	5	2-4
	11-38	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High-----	0.32		
	38-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high----	0.32		
Mo----- Moreland	0-12	27-39	1.45-1.75	0.06-0.2	0.19-0.21	6.1-7.8	Moderate----	0.37	5	2-4
	12-44	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High-----	0.32		
	44-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high----	0.32		
Mr----- Moreland	0-10	39-50	1.20-1.50	<0.06	0.18-0.20	6.1-7.8	Very high----	0.32	5	2-4
	10-31	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High-----	0.32		
	31-66	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high----	0.32		
Mt----- Moreland	0-5	39-50	1.20-1.50	<0.06	0.18-0.20	6.1-7.8	Very high----	0.32	5	2-4
	5-36	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High-----	0.32		
	36-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high----	0.32		
Mw----- Moreland	0-11	39-50	1.20-1.50	<0.06	0.18-0.20	6.1-7.8	Very high----	0.32	5	2-4
	11-40	39-60	1.20-1.45	<0.06	0.18-0.20	6.6-8.4	High-----	0.32		
	40-65	35-60	1.20-1.75	<0.2	0.18-0.21	7.4-8.4	Very high----	0.32		
Nd----- Norwood	0-8	10-27	1.35-1.65	0.6-2.0	0.17-0.21	7.4-8.4	Low-----	0.43	5	.5-2
	8-20	18-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low-----	0.43		
	20-66	10-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low-----	0.43		
No----- Norwood	0-8	27-40	1.35-1.65	0.6-2.0	0.18-0.22	7.4-8.4	Moderate----	0.32	5	.5-2
	8-23	18-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low-----	0.43		
	23-67	10-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low-----	0.43		
Nr----- Norwood	0-13	10-27	1.35-1.65	0.6-2.0	0.17-0.21	7.4-8.4	Low-----	0.43	5	.5-2
	13-37	18-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low-----	0.43		
	37-75	10-35	1.35-1.65	0.6-2.0	0.15-0.22	7.9-8.4	Low-----	0.43		
Pt*. Pits										
RK*: Rigolette	0-12	3-10	1.35-1.70	6.0-20.0	0.07-0.11	4.5-5.5	Low-----	0.20	4	.5-1
	12-17	18-30	1.35-1.65	0.6-2.0	0.11-0.20	4.5-5.5	Low-----	0.32		
	17-32	20-35	1.35-1.65	0.6-2.0	0.12-0.17	4.5-5.5	Moderate----	0.32		
	32-75	50-70	1.20-1.60	<0.06	0.08-0.11	3.6-5.5	High-----	0.32		
Kisatchie	0-8	10-27	1.35-1.65	0.6-2.0	0.12-0.20	4.5-5.5	Low-----	0.43	3	.5-2
	8-24	35-55	1.20-1.70	<0.06	0.15-0.18	3.6-5.0	High-----	0.32		
	24-60	---	---	---	---	---	---	---		
Rn----- Roxana	0-6	5-27	1.35-1.80	0.6-2.0	0.10-0.21	6.1-8.4	Low-----	0.43	5	.5-2
	6-65	10-18	1.35-1.80	0.6-2.0	0.10-0.19	6.6-8.4	Low-----	0.37		
Rn, Ro----- Roxana	0-5	5-27	1.35-1.80	0.6-2.0	0.10-0.21	6.1-8.4	Low-----	0.43	5	.5-2
	5-65	10-18	1.35-1.80	0.6-2.0	0.10-0.19	6.6-8.4	Low-----	0.37		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
								K	T	
	In	Pct	G/cm ³	In/hr	In/in	pH				Pct
Rp----- Ruston	0-14 14-33 33-58 58-75	5-20 18-35 10-20 15-38	1.30-1.70 1.40-1.80 1.30-1.70 1.40-1.70	0.6-2.0 0.6-2.0 0.6-2.0 0.6-2.0	0.09-0.16 0.12-0.17 0.12-0.15 0.12-0.17	4.5-6.5 4.5-6.0 4.5-6.0 4.5-6.0	Low----- Low----- Low----- Low-----	0.28 0.28 0.32 0.28	5	.5-2
RR*: Ruston-----	0-10 10-40 40-50 50-80	5-20 18-35 10-20 15-38	1.30-1.70 1.40-1.80 1.30-1.70 1.40-1.70	0.6-2.0 0.6-2.0 0.6-2.0 0.6-2.0	0.09-0.16 0.12-0.17 0.12-0.15 0.12-0.17	4.5-6.5 4.5-6.0 4.5-6.0 4.5-6.0	Low----- Low----- Low----- Low-----	0.28 0.28 0.32 0.28	5	.5-2
Cadeville-----	0-7 7-24 24-65	10-22 39-60 30-60	1.30-1.65 1.20-1.45 1.20-1.65	0.6-2.0 <0.06 <0.2	0.14-0.22 0.18-0.20 0.18-0.20	3.6-6.0 3.6-5.5 3.6-5.5	Low----- High----- High-----	0.43 0.32 0.32	5	.5-1
RS*: Ruston-----	0-7 7-41 41-47 47-75	5-20 18-35 10-20 15-38	1.30-1.70 1.40-1.80 1.30-1.70 1.40-1.70	0.6-2.0 0.6-2.0 0.6-2.0 0.6-2.0	0.09-0.16 0.12-0.17 0.12-0.15 0.12-0.17	4.5-6.5 4.5-6.0 4.5-6.0 4.5-6.0	Low----- Low----- Low----- Low-----	0.28 0.28 0.32 0.28	5	.5-2
Smithdale-----	0-6 6-36 36-72	2-15 18-33 12-27	1.40-1.50 1.40-1.55 1.40-1.55	2.0-6.0 0.6-2.0 2.0-6.0	0.14-0.16 0.15-0.17 0.14-0.16	4.5-5.5 4.5-5.5 4.5-5.5	Low----- Low----- Low-----	0.28 0.24 0.28	5	.5-2
Sm----- Smithdale	0-9 9-24 24-65	2-15 18-33 12-27	1.40-1.50 1.40-1.55 1.40-1.55	2.0-6.0 0.6-2.0 2.0-6.0	0.14-0.16 0.15-0.17 0.14-0.16	4.5-5.5 4.5-5.5 4.5-5.5	Low----- Low----- Low-----	0.28 0.24 0.28	5	.5-2
Water Variant	0-6 6-28 28-60	27-39 35-57 40-60	1.35-1.65 1.20-1.65 1.20-1.50	0.06-2.0 0.06-2.0 0.06-2.0	0.12-0.17 0.12-0.17 0.12-0.17	7.4-8.4 7.4-8.4 7.4-8.4	High----- High----- High-----	0.37 0.37 0.37	5	1-5
Un----- Una	0-6 6-80	28-45 28-55	1.40-1.60 1.40-1.60	<0.06 <0.06	0.15-0.20 0.15-0.20	4.5-5.5 4.5-5.5	High----- High-----	0.32 0.28	5	1-3
Uo----- Urbo Variant	0-4 4-31 31-46 46-70	25-38 27-35 20-35 10-25	1.35-1.65 1.35-1.65 1.35-1.65 1.35-1.65	0.2-0.6 0.06-0.2 0.06-0.2 0.2-0.6	0.16-0.22 0.18-0.22 0.12-0.20 0.11-0.20	4.5-5.5 4.5-5.5 4.5-5.5 4.5-5.5	Moderate----- Moderate----- Moderate----- Low-----	0.43 0.37 0.32 0.32	5	.5-2
Va----- Vaiden	0-3 3-21 21-75	25-55 60-75 40-75	1.20-1.40 1.20-1.40 1.20-1.40	0.06-0.2 <0.06 <0.06	0.10-0.15 0.10-0.15 0.10-0.15	4.5-6.5 4.5-6.0 4.5-7.8	High----- Very high----- Very high-----	0.32 0.32 0.32	4	.5-2
Yo----- Yorktown	0-5 5-45 45-65	40-65 60-80 60-80	1.15-1.45 1.15-1.45 1.15-1.45	<0.06 <0.06 <0.06	0.12-0.18 0.12-0.18 0.12-0.18	5.6-7.3 5.6-7.3 7.4-8.4	High----- Very high----- Very high-----	0.32 0.32 0.32	5	1-5

* See description of the map unit for composition and behavior characteristics of the map unit.

APPENDIX 8

ENVIRONMENTAL ASSESSMENT REPORT (1/94)

APPENDIX 8

The environmental assessment report was submitted to LDEQ in January 1994. The cover page, overall table of contents, and table of contents for each section follow. The complete document including all text, tables, drawings, and attachments, is part of the regulatory file maintained at LDEQ.

ENVIRONMENTAL ASSESSMENT REPORT

**LIDLAW ENVIRONMENTAL SERVICES
(THERMAL TREATMENT), INC.**

Colfax, Louisiana

EPA ID # LAD981055791

January 1994

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SECTION IV - SOIL SURFACE

VOLUME II

SECTION V - AIR

SECTION I

INTRODUCTION

January 1994

Prepared By :

*ViroGroup, Inc. - ETE Division
417 S. Buncombe Road, Suite 1
Greer, South Carolina 29650
(803) 879 - 3900*

*Environmental Resources Management, Inc.
Princeton Crossroads Corporate Center
300 Phillips Boulevard, Suite 200
Ewing, New Jersey 08618
(609) 895 - 0050*

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GROUNDWATER
AND
SUBSURFACE ENVIRONMENT

January 1994

Prepared By :

ViroGroup, Inc. - ETE Division
417 S. Buncombe Road, Suite 1
Greer, South Carolina 29650
(803) 879 - 3900

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WETLANDS
AND
SURFACE WATER

January 1994

Prepared By :

ViroGroup, Inc. - ETE Division
417 S. Buncombe Road, Suite 1
Greer, South Carolina 29650
(803) 879 - 3900

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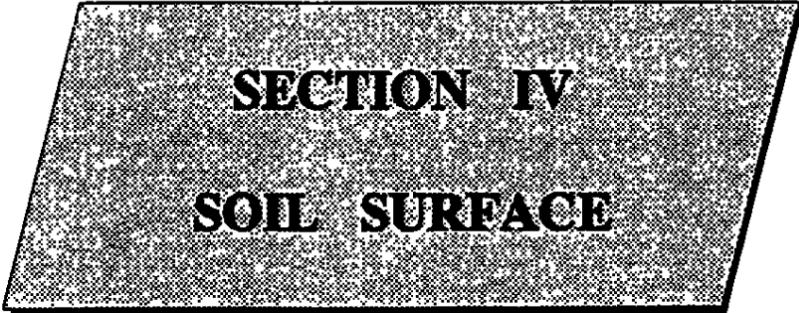
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SECTION IV
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January 1994

Prepared By :

ViroGroup, Inc. - ETE Division
417 S. Buncombe Road, Suite 1
Greer, South Carolina 29650
(803) 879 - 3900

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ECOLOGICAL RISK ASSESSMENT

January 1994

Prepared By:

Environmental Resources Management, Inc.
Princeton Crossroads Corporate Center
300 Phillips Boulevard, Suite 200
Ewing, New Jersey 08618

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APPENDIX 9

CLIMATOLOGY DATA

FAX TRANSMISSION INVOICE 30797

Louisiana Office of State Climatology*Department of Geography and Anthropology***LOUISIANA STATE UNIVERSITY***Baton Rouge, Louisiana 70803-4105**(504) 388-6870**FAX: (504) 388-2912*24216-01
LAIDLEW**Originator:** Bette Wall
FAX No.: (504) 388 - 2912**Addressee:** Ms. Richard LaBranche
Company: GNE Engineering
4915 S. Sherwood
Baton Rouge, LA 70816
292-9007**Phone No.:** (504) 928-2545**FAX No.:** 293-1748**Date:** March 7, 1997**Page 1 of 12**

Enclosed is the climatological information that you requested. This is furnished by the **LOUISIANA OFFICE OF STATE CLIMATOLOGY** as a cooperative effort between Louisiana State University, the Southern Regional Climate Center, the National Climatic Data Center, and the National Weather Service.

Please make payment to: **LOUISIANA OFFICE OF STATE CLIMATOLOGY**, and mail to **254 Howe Russell Complex** at the above address. Please reference above Invoice number on check. Thank you for using our services. We are pleased to be of assistance.

John M. Grymes III
State Climatologist**Kevin D. Robbins**
Associate Director**Robert A. Muller**
Director, SRCC

DATA DESCRIPTION AND SERVICE		FEE
Alexandria (0098) LA:	1988-96 monthly summaries Normals average monthly pan evaporation hurricane chart Windroses (Baton Rouge, Shreveport, Lake Charles)	\$25.00
PLEASE reference invoice # on check. Please add \$5.00 late fee if payment remitted after 60 days .		
INVOICE TOTAL		\$25.00

ANALYSIS PROVIDED BY THE
SOUTHERN REGIONAL CLIMATE CENTER

Sta. Name - ALEXANDRIA
State - LA (FIPS - 22, NCDC - 16)
County - RAPIDES
Clim Div - 5
Latitude - 31.32
Longitude - -92.47
Sta. Num. - 98
Elevation - 87 [ft]
Base Year - 1930

National Climate Data Center
Climate Data Normals - 1961 through 1990

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Max T	57.2	61.9	69.8	77.7	84.2	90.2	92.5	92.5	87.8	79.7	69.8	61.0
Min T	36.4	39.7	48.0	56.2	63.2	69.6	72.3	71.6	66.7	54.6	46.9	39.3
Avg T	46.8	50.8	58.9	66.9	73.7	79.9	82.4	82.1	77.3	67.2	58.4	50.2
Prcp	5.20	4.97	5.37	4.13	5.12	4.43	4.48	4.50	4.11	4.25	5.25	6.69
(sum)	5.20	10.17	15.54	19.67	24.79	29.22	33.70	38.20	42.31	46.56	51.81	58.50
HDD	571	406	220	53	0	0	0	0	0	58	227	468
(sum)	1324	1730	1950	2003	2003	2003	0	0	0	58	285	753
CDD	7	8	31	110	270	447	539	530	369	127	29	10
(sum)	7	15	46	156	426	873	1412	1942	2311	2438	2467	2477

Annual	Data Type	Units
Max T 77.0	Mean Maximum Temperature	Degrees F
Min T 55.4	Mean Minimum Temperature	Degrees F
Avg T 66.2	Mean Average Temperature	Degrees F
Prcp 58.50	Mean Total Precipitation	inches
HDD 2003	Mean Heating Degree Days	Degrees F
CDD 2477	Mean Cooling Degree Days	Degrees F

note: summation values (sum) refer to the entries above the sum.
Prcp and CDD sums are calculated from January-December.
HDD sums are calculated from July-June.

Station: ALEXANDRIA

State: LA

Index No: 16-0098-05

MONTHLY CLIMATE SUMMARY: 1988 - 1997

Month	Monthly Temperatures			Monthly Extremes			Number of Days						Degree Days		Monthly Prec	One Day Maximum	Number of Days						
	MAX	MIN	AVG	HI Dt	LO Dt	Daily Max T			Daily Min T			HDD	CDD	Total	Total Dt	Rain Days	with PREC >=						
						msg	>=90	<=32	msg	<=32	<=0						0.1	0.5	1.0	PREC msg			
1988 JAN	53.5	33.2	43.4	73	19	22	10	0	0	1	0	16	0	664	1	2.66	1.14	7	8	6	2	1	0
FEB	61.1	40.8	50.9	76	1	21	7	0	0	0	0	6	0	405	5	4.38	0.80	18	9	8	5	0	0
MAR	69.1	48.0	58.6	81	29	30	15	0	0	0	0	1	0	217	23	7.42	1.78	9	8	6	6	4	0
APR	78.4	55.4	66.9	86	26	39	11	0	0	0	0	0	0	43	109	1.99	1.10	2	7	5	1	1	0
MAY	86.2	59.3	72.8	93	18	48	1	0	10	0	0	0	0	3	250	2.13	2.00	22	2	2	1	1	0
JUN	91.1	67.5	79.3	98	29	52	11	0	19	0	0	0	0	0	439	1.86	1.22	25	6	3	1	1	0
JUL	90.2	72.9	81.6	96	2	69	9	0	19	0	0	0	0	0	522	4.30	1.40	5	13	10	3	1	0
AUG	91.0	73.2	82.1	97	7	67	31	0	22	0	0	0	0	0	540	5.22	1.83	11	10	8	3	2	0
SEP	86.8	68.4	77.6	91	15	54	8	0	10	0	0	0	0	0	384	4.23	2.94	4	6	3	2	1	0
OCT	75.7	53.9	64.8	85	19	43	13	0	0	0	0	0	0	57	56	5.39	1.75	27	9	7	4	2	0
NOV	71.2	49.6	60.4	85	9	33	24	0	0	0	0	0	0	183	53	1.60	0.78	13	4	4	1	0	0
DEC	63.2	40.1	51.7	77	22	26	18	0	0	0	0	8	0	411	4	6.29	1.43	11	12	10	5	2	0
ANNUAL			65.8	98		21		0	80	1	0	31	0	1983	2386	47.47	2.94		94	72	34	16	0
1989 JAN	63.4	43.8	53.6	81	4	27	22	0	0	0	0	3	0	350	5	6.27	0.82	12	17	12	5	0	0
FEB	57.9	40.0	49.0	82	2	23	7	0	0	3	0	11	0	465	24	5.06	3.97	21	11	5	1	1	0
MAR	68.5	47.4	58.0	86	31	26	6	0	0	0	0	5	0	264	55	8.08	2.25	29	9	8	5	4	0
APR	77.1	53.1	65.1	90	30	35	11	0	1	0	0	0	0	95	106	1.52	0.50	28	7	6	1	0	0
MAY	84.4	65.6	75.0	96	28	54	11	0	9	0	0	0	0	0	316	8.03	2.60	18	8	7	5	3	0
JUN	86.3	69.8	78.1	94	1	60	16	0	9	0	0	0	0	0	398	13.56	3.48	28	12	10	8	7	0
JUL	90.3	72.4	81.4	95	13	68	22	0	20	0	0	0	0	0	512	4.11	1.06	7	12	10	3	1	0
AUG	92.0	71.0	81.5	98	28	60	9	0	26	0	0	0	0	0	521	4.66	1.90	8	7	4	3	2	0
SEP	87.0	66.4	76.7	100	2	51	24	0	16	0	0	0	0	6	362	0.45	0.23	10	3	2	0	0	0
OCT	81.4	54.2	67.8	94	4	30	20	0	2	0	0	2	0	61	155	0.22	0.15	17	4	1	0	0	0
NOV	71.8	47.6	59.7	87	8	31	17	0	0	0	0	3	0	209	58	2.66	1.09	23	9	6	1	1	0
DEC	52.2	30.2	41.2	76	7	7	23	0	0	4	0	17	0	727	0	3.38	1.70	7	8	6	2	1	0
ANNUAL			65.6	100		7		0	83	7	0	41	0	2177	2512	58.00	3.97		107	77	34	20	0
1990 JAN	62.4	43.2	52.8	76	20	29	1	0	0	0	0	5	0	375	3	13.95	3.45	25	13	12	9	7	0
FEB	67.6	47.0	57.3	81	16	34	5	0	0	0	0	0	0	226	17	4.23	1.39	22	11	10	1	1	0
MAR	70.5	51.3	60.9	82	10	37	20	0	0	0	0	0	0	180	60	6.41	3.00	15	8	7	3	2	0
APR	77.3	55.2	66.3	87	30	38	7	0	0	0	0	0	0	75	117	3.27	1.48	11	8	7	2	1	0
MAY	83.6	65.0	74.3	91	27	55	6	0	2	0	0	0	0	0	297	8.24	2.60	28	9	8	5	3	0
JUN	93.8	73.2	83.5	101	20	66	24	0	29	0	0	0	0	0	563	2.21	1.47	1	4	3	2	1	0
JUL	92.7	71.9	82.3	99	9	63	14	0	23	0	0	0	0	0	545	2.75	0.96	4	7	5	2	0	0
AUG	95.2	71.9	83.6	101	31	60	9	0	26	0	0	0	0	0	584	2.24	1.20	1	6	5	2	1	0
SEP	91.0	69.4	80.2	101	5	51	24	0	20	0	0	0	0	0	462	1.66	0.41	3	14	6	0	0	0
OCT	79.9	53.4	66.7	92	1	40	26	0	6	0	0	0	0	97	157	4.16	3.21	22	5	3	2	1	0
NOV	72.8	48.1	60.5	82	3	33	30	0	0	0	0	0	0	171	40	4.15	1.22	9	7	4	4	3	0
DEC	62.3	40.9	51.6	77	16	17	24	0	0	0	0	8	0	420	12	7.05	2.55	22	13	11	5	2	0
ANNUAL			68.3	101		17		0	106	0	0	13	0	1544	2857	60.32	3.45		105	81	37	22	0

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Station: ALEXANDRIA

State: LA

Index No: 16-0098-05

MONTHLY CLIMATE SUMMARY: 1988 - 1997

Month	Monthly Temperatures			Monthly Extremes			Number of Days						Degree Days		Monthly Prec	One Day Maximum	Rain Days	Number of Days with PREC >=				PREC mag	
	MAX	MIN	AVG	HI Dt	LO Dt	Daily Max T			Daily Min T			Days		Total	Total Dt		0.1	0.5	1.0				
						msg >=90	<=32		msg <=32	<=0	HDD	CDD											
1991 JAN	54.1	38.1	46.1	68	7	29	1	0	0	0	0	6	0	580	0	12.13	2.17	3	14	12	9	6	0
FEB	64.4	43.1	53.8	73	11	30	16	0	0	0	0	1	0	307	0	5.23	1.57	19	10	8	3	2	0
MAR	71.1	49.6	60.4	85	28	37	30	0	0	0	0	0	0	192	54	7.78	4.00	29	8	4	3	2	0
APR	78.6	61.5	70.1	86	19	44	1	0	0	0	0	0	0	16	178	14.76	3.30	29	9	8	6	6	0
MAY	83.7	68.4	76.1	92	28	56	6	0	1	0	0	0	0	0	348	9.64	2.75	4	19	14	6	2	0
JUN	90.3	72.2	81.3	97	6	68	8	0	19	0	0	0	0	0	494	4.54	1.21	23	12	7	4	1	0
JUL	92.5	73.8	83.2	97	15	71	18	0	27	0	0	0	0	0	572	6.13	2.23	5	10	5	4	2	0
AUG	91.1	72.1	81.6	96	4	69	1	0	22	0	0	0	0	0	521	5.88	2.47	31	13	11	4	1	0
SEP	86.4	66.8	76.6	94	19	52	27	0	12	0	0	0	0	5	358	1.83	0.83	25	6	3	2	0	0
OCT	81.7	57.8	69.8	92	13	44	8	0	2	0	0	0	0	29	185	4.65	2.54	30	6	4	3	2	0
NOV	64.3	42.1	53.2	82	20	25	9	0	0	0	0	5	0	366	20	5.95	2.07	1	7	5	4	2	0
DEC	63.1	46.6	54.9	79	1	34	4	0	0	0	0	0	0	325	19	8.89	2.50	13	10	9	7	6	0
ANNUAL			67.3	97		25		0	83	0	0	12	0	1820	2749	87.41	4.00		124	90	55	32	0
1992 JAN	56.6	38.1	47.4	69	26	25	16	0	0	0	0	7	0	542	0	7.31	1.44	12	11	9	6	4	0
FEB	65.9	45.3	55.6	82	16	33	9	0	0	0	0	0	0	274	7	5.43	1.79	13	11	9	3	2	0
MAR	69.9	50.4	60.2	82	16	34	11	0	0	0	0	0	0	154	11	4.13	1.87	5	8	6	3	1	0
APR	76.1	55.6	65.9	88	25	41	3	0	0	0	0	0	0	70	102	3.31	0.69	20	10	6	5	0	0
MAY	82.8	62.8	72.8	92	15	48	7	0	2	0	0	0	0	14	264	2.58	1.14	26	9	5	2	1	0
JUN	88.8	70.8	79.8	97	20	62	1	0	15	0	0	0	0	0	450	9.14	5.05	30	15	11	4	1	0
JUL	92.3	73.7	83.0	97	7	70	1	0	27	0	0	0	0	0	566	3.53	1.30	18	9	7	2	1	0
AUG	88.5	69.8	79.2	95	8	62	16	0	14	0	0	0	0	0	446	3.75	1.42	12	5	5	2	2	0
SEP	86.5	67.9	77.2	93	11	51	30	0	11	0	0	0	0	0	375	4.03	2.45	22	4	3	3	2	0
OCT	79.8	55.8	67.8	86	27	48	9	0	0	0	0	0	0	16	109	2.50	1.03	30	6	4	3	1	0
NOV	63.7M	44.5	54.1M	83	1	28	29	1	0	0	0	2	0	333E	16E	6.70	1.82	20	10	10	6	3	0
DEC	60.1	43.3	51.7	74	31	30	1	0	0	0	0	1	0	410	1	5.84	1.46	10	13	8	5	3	0
ANNUAL			66.2M	97		25		1	69	0	0	10	0	1813E	2347E	58.25	5.05		111	83	44	21	0
1993 JAN	58.0	40.3	49.2	75	1	31	27	0	0	0	0	2	0	485	0	5.61	1.37	21	13	10	4	2	0
FEB	62.6	40.1	51.4	82	22	30	19	0	0	0	0	4	0	374	0	2.54	1.60	26	4	4	1	1	0
MAR	66.5	46.0	56.3	81	10	26	14	0	0	0	0	2	0	279	15	6.68	2.80	2	10	9	3	2	0
APR	71.5	51.4	61.5	82	26	40	16	0	0	0	0	0	0	146	48	7.54	2.40	8	7	7	5	4	0
MAY	81.0	62.9	72.0	87	30	55	3	0	0	0	0	0	0	5	231	5.18	2.31	2	9	6	3	2	0
JUN	88.8	72.2	80.5	96	15	58	1	0	17	0	0	0	0	0	471	6.59	1.55	24	12	9	7	2	0
JUL	93.2	74.9	84.1	99	30	71	16	0	28	0	0	0	0	0	597	4.21	2.25	11	5	4	2	2	0
AUG	95.6	75.2	85.4	101	21	72	29	0	30	0	0	0	0	0	640	1.71	1.25	5	8	3	1	1	0
SEP	90.9	68.0	79.5	99	3	51	28	0	22	0	0	0	0	1	445	1.29	0.90	27	4	2	1	0	0
OCT	77.4	56.6	67.0	89	7	30	31	0	0	0	0	1	0	85	154	3.76	0.95	14	7	6	4	0	0
NOV	64.3	42.8	53.6	84	14	29	27	0	0	0	0	5	0	359	22	8.11	3.50	15	11	8	3	3	0
DEC	60.9	40.5	50.7	75	3	28	31	0	0	0	0	6	0	439	6	4.01	1.17	14	9	6	3	1	0
ANNUAL			65.9	101		26		0	97	0	0	20	0	2173	2629	57.23	3.50		99	74	37	20	0

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Station: ALEXANDRIA

State: LA

Index No: 16-0098-05

MONTHLY CLIMATE SUMMARY: 1988 - 1997

Month	Monthly Temperatures			Monthly Extremes			Number of Days						Degree Days		Monthly Prec	One Day Maximum	Number of Days with PREC >=						
	MAX	MIN	AVG	HI Dt	LO Dt	Daily Max T			Daily Min T			Days		Total	Total Dt	Rain Days	PREC						
						msg	>=90	<=32	msg	<=32	<=0	HDD	CDD				0.1	0.5	1.0	msg			
1994 JAN	55.8	36.5	46.2	73	7	21	19	0	0	0	0	10	0	579	2	12.53	4.75	27	12	5	4	3	0
FEB	62.3	41.6	52.0	79	9	27	2	0	0	0	0	7	0	377	16	3.09	0.90	21	9	6	4	0	0
MAR	70.2	48.0	59.1	83	24	34	3	0	0	0	0	0	0	209	34	4.31	1.62	9	6	6	4	1	0
APR	77.6	56.7	67.2	88	28	35	7	0	0	0	0	0	0	81	150	4.05	2.14	6	4	2	2	2	0
MAY	80.7	63.1	71.9	88	12	53	3	0	0	0	0	0	0	11	231	11.62	2.75	8	16	13	7	3	0
JUN	90.1	72.9	81.5	96	10	68	1	0	18	0	0	0	0	0	501	4.54	1.60	5	11	7	4	1	0
JUL	90.3	73.0	81.7	95	8	66	28	0	19	0	0	0	0	0	522	6.12	1.17	27	15	12	5	1	0
AUG	89.8	72.2	81.0	95	15	68	16	0	21	0	0	0	0	0	502	4.06	1.40	30	11	9	2	1	0
SEP	87.1	66.2	76.6	95	30	50	25	0	9	0	0	0	0	0	358	1.96	0.73	17	7	4	2	0	0
OCT	77.5	59.4	68.5	92	1	44	27	0	2	0	0	0	0	52	165	13.11	4.55	19	11	9	6	3	0
NOV	71.8	52.4	62.1	83	4	43	30	0	0	0	0	0	0	113	35	2.08	0.95	10	7	5	1	0	0
DEC	62.1	43.4	52.8	78	9	30	12	0	0	0	0	4	0	378	6	4.76	1.27	17	9	8	3	2	0
ANNUAL			66.7	96		21		0	69	0	0	21	0	1800	2522	72.23	4.75		118	86	44	17	0
1995 JAN	59.9	40.8	50.4	77	12	25	5	0	0	0	0	7	0	452	6	7.06	3.00	27	13	7	4	2	0
FEB	65.3	41.5	53.4	78	3	29	12	0	0	0	0	4	0	324	7	2.04	0.54	17	10	6	1	0	0
MAR	69.5	52.1	60.8	86	23	32	8	0	0	0	0	1	0	195	71	11.89	4.60	7	14	12	5	3	0
APR	76.5	56.5	66.5	85	18	46	1	0	0	0	0	0	0	53	106	11.07	4.85	23	8	6	3	3	0
MAY	85.0	65.8	75.4	91	11	54	2	0	8	0	0	0	0	3	334	5.73	2.78	31	8	8	5	1	0
JUN	90.3	69.5	79.9	95	6	59	13	0	19	0	0	0	0	0	454	5.26	1.73	29	6	5	4	2	0
JUL	93.1	73.9	83.5	101	29	67	6	0	23	0	0	0	0	0	580	8.54	3.44	6	10	9	6	2	0
AUG	94.9	75.7	85.3	100	19	73	2	0	28	0	0	0	0	0	639	2.17	0.70	1	8	6	2	0	0
SEP	90.5	67.3	78.9	99	2	52	23	0	20	0	0	0	0	9	434	3.96	2.70	22	3	3	2	2	0
OCT	79.8	55.9	67.9	91	1	42	21	0	2	0	0	0	0	34	129	5.94	5.45	3	7	3	1	1	0
NOV	67.6	44.5	56.1	86	3	32	12	0	0	0	0	3	0	268	6	5.79	2.65	11	9	7	3	2	0
DEC	59.4	40.4	49.9	83	4	22	10	0	0	0	0	12	0	478	18	8.52	2.57	19	8	7	6	3	0
ANNUAL			67.3	101		22		0	100	0	0	27	0	1816	2784	77.97	5.45		104	79	42	21	0
1996 JAN	59.8	36.5	48.2	76	18	19	8	0	0	0	0	12	0	514	1	4.44	1.45	6	11	7	3	1	0
FEB	63.4	42.2	52.8	82	23	14	4	0	0	4	0	8	0	390	41	1.37	1.10	2	4	2	1	1	0
MAR	65.8	43.0	54.4	82	16	25	9	0	0	0	0	8	0	353	34	3.48	1.10	27	9	6	2	1	0
APR	76.0	53.8	64.9	86	20	37	7	0	0	0	0	0	0	96	101	9.61	2.75	23	6	5	5	4	0
MAY	86.9	68.4	77.7	93	29	47	1	0	8	0	0	0	0	5	407	3.32	1.82	30	3	3	3	1	0
JUN	89.5	70.6	80.1	94	18	63	9	0	16	0	0	0	0	0	462	6.64	1.89	20	9	8	4	3	0
JUL	92.9	74.4	83.7	98	4	71	26	0	28	0	0	0	0	0	585	3.24	1.89	25	6	6	2	1	0
AUG	90.2	72.4	81.3	95	3	68	13	0	23	0	0	0	0	0	514	3.15	0.51	29	15	10	2	0	0
SEP	86.4	66.9	76.7	95	17	53	29	0	9	0	0	0	0	2	358	4.37	1.36	27	6	5	4	2	0
OCT	78.4	57.1	67.8	86	18	40	23	0	0	0	0	0	0	44	138	6.81	3.90	26	7	5	4	2	0
NOV	68.9	49.2	59.1	84	2	33	27	0	0	0	0	0	0	201	31	5.22	3.34	18	4	4	2	2	0
DEC	63.7	44.5	54.1	81	13	20	19	0	0	0	0	6	0	349	19	5.59	2.28	16	8	6	3	2	0
ANNUAL			66.7	98		14		0	84	4	0	34	0	1954	2691	57.24	3.90		88	67	35	20	0

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Station: ALEXANDRIA

State: LA

Index No: 16-0098-05

MONTHLY CLIMATE SUMMARY: 1988 - 1997

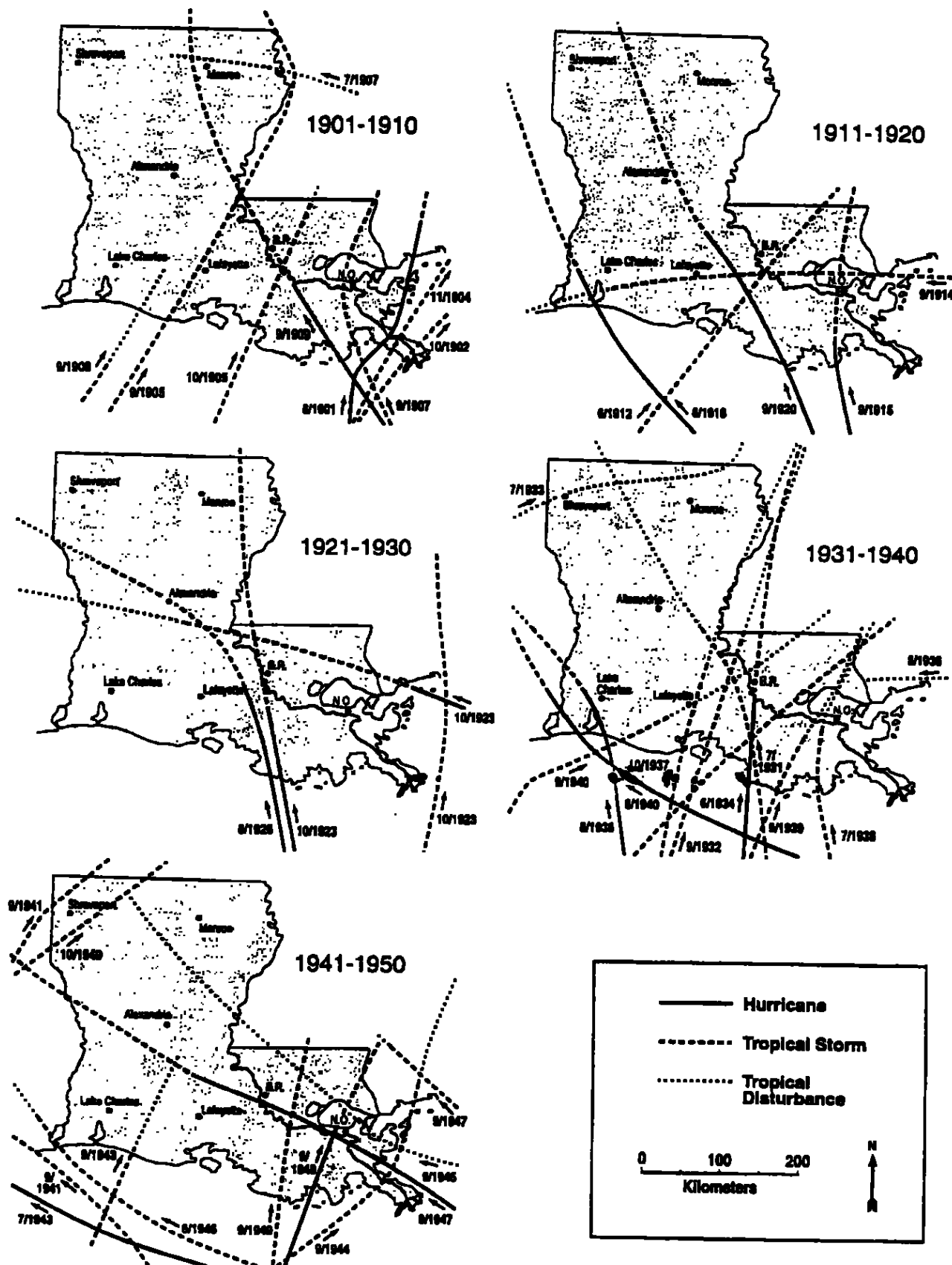
Month	Monthly Temperatures			Monthly Extremes		Number of Days						Degree Days		Monthly Prec	One Day Maximum	Number of Days							
	MAX	MIN	AVG	HI Dt	LO Dt	msg >=90		<=32		msg <=32		<=0	HDD	CDD	Total	Total Dt	Rain Days	with PREC >=0.1	PREC >=0.5	PREC >=1.0	msg		
1997 JAN	57.4	39.6	48.5	79	25	23	17	0	0	2	0	11	0	520	19	5.26	2.90	28	11	8	1	1	0
FEB2	60.4M	44.6M	52.5M	84	3	34	15	3	0	0	3	0	0	365E	23E	13.15M	4.00M	13	10M	10	8	5	1
MARZ	M	M	M	M	M	25	M	M	25	M	M	M	M	M	M	0.26M	0.13M	6	4M	1	0	0	25
APR	M	M	M	M	M	30	M	M	30	M	M	M	M	M	M	M	M	M	M	M	M	M	30
MAY	M	M	M	M	M	31	M	M	31	M	M	M	M	M	M	M	M	M	M	M	M	M	31
JUN	M	M	M	M	M	30	M	M	30	M	M	M	M	M	M	M	M	M	M	M	M	M	30
JUL	M	M	M	M	M	31	M	M	31	M	M	M	M	M	M	M	M	M	M	M	M	M	31
AUG	M	M	M	M	M	31	M	M	31	M	M	M	M	M	M	M	M	M	M	M	M	M	31
SEP	M	M	M	M	M	30	M	M	30	M	M	M	M	M	M	M	M	M	M	M	M	M	30
OCT	M	M	M	M	M	31	M	M	31	M	M	M	M	M	M	M	M	M	M	M	M	M	31
NOV	M	M	M	M	M	30	M	M	30	M	M	M	M	M	M	M	M	M	M	M	M	M	30
DEC	M	M	M	M	M	31	M	M	31	M	M	M	M	M	M	M	M	M	M	M	M	M	31
ANNUALZ	50.5M			84	23	303	0	2	303	11	0	885M	42M	18.67M	4.00M	25M	19	9	6	301			

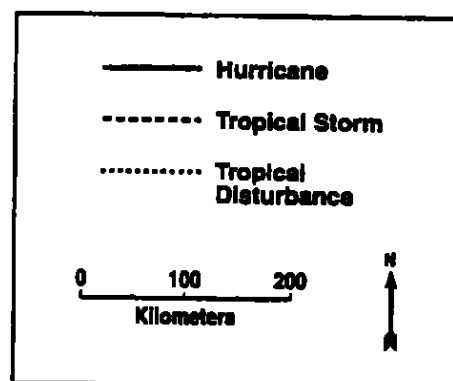
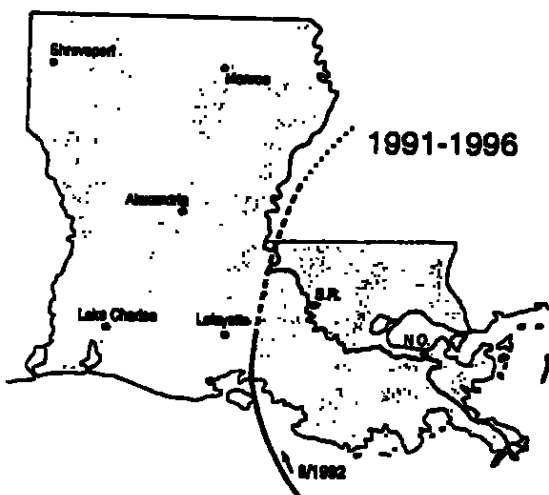
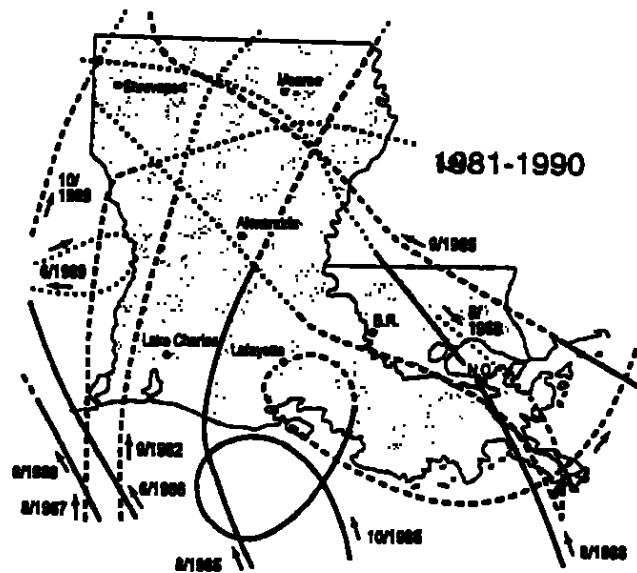
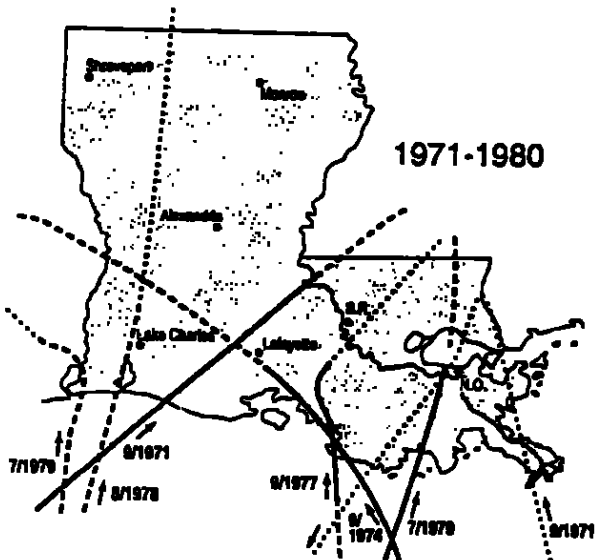
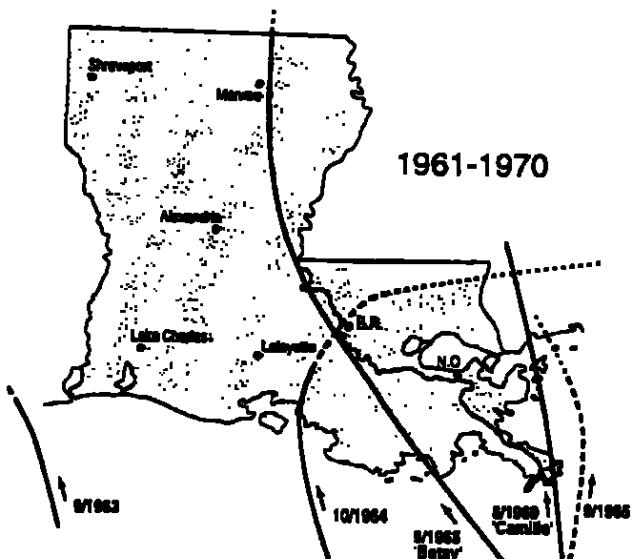
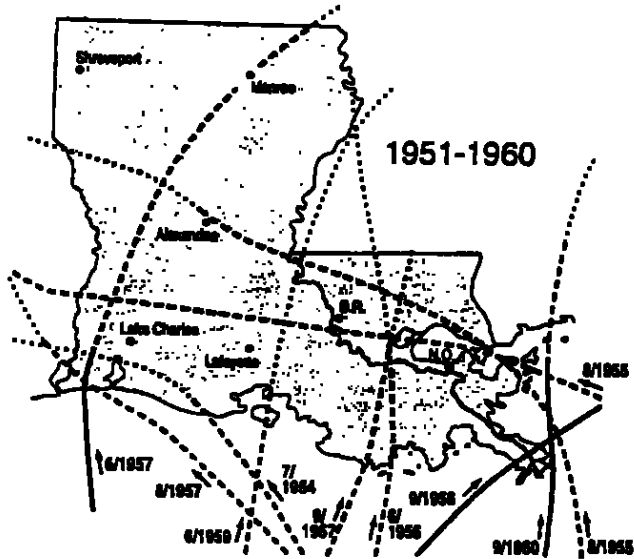
M - indicates that daily observations are missing from the records

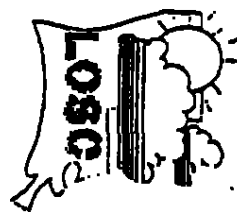
E - indicates that degree day values are estimated

Z - indicates that the data is preliminary and is NOT quality controlled

This summary is provided by the Southern Regional Climate Center (SRCC) and the Louisiana Office of State Climatology (LOSC).
The SRCC/LOSC is solely responsible for these data.







Louisiana Office of State Climatology

Department of Geography and Anthropology

LOUISIANA STATE UNIVERSITY

Baton Rouge, Louisiana 70803-4105

(504) 388-6870

FAX: (504) 388-2912

Average Monthly Estimated Pan Evaporation Rates (in inches) based on available stations

Station	Years Based	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Red River	1977-1993	1.7	2.7	4.3	5.6	6.7	7.7	8.2	7.5	5.8	4.2	2.5	2.1
Calhoun	1961-1993	1.9	3.2	4.8	5.7	6.8	7.4	7.8	7.2	5.6	4.4	2.8	2.0
LSU-Ben Hur	1963-1993	2.4	3.2	4.7	6.2	7.1	7.4	6.9	6.4	5.6	5.1	3.4	2.6
Houma	1976-1993	2.4	2.9	4.6	5.8	6.5	6.6	6.4	5.9	5.2	4.4	2.9	2.4
St. Joseph	1976-1985	N/A	3.1	4.4	5.8	7.1	7.9	7.7	7.1	6.0	4.9	3.0	2.6
Jennings	1990-1993	2.3	2.9	4.3	5.2	6.7	7.3	7.4	7.0	5.7	4.8	3.0	2.2



Louisiana Office of State Climatology

Department of Geography and Anthropology

LOUISIANA STATE UNIVERSITY

Baton Rouge, Louisiana 70803-4105

(504) 388-6870

Interpretation of LOSC Windroses

Hourly wind observations from National Weather Service (NWS) Offices are obtained to determine the direction and speed components for monthly, seasonal and annual wind characteristics. Data were examined for the period of 1961-1980. Standard NWS wind instruments, at a height of twenty feet above the surface, were used to collect the data.

The original data are recorded in knots (1 knot = 1.15 miles per hour). Wind directions are reported in ten-degree increments, ranging clockwise from 10° through 360°: from east-of-north through south to due-north.

To reduce the complexity of the array of direction-speed combinations present in the hourly database, categories were developed for each of the two wind components. Data were condensed into eight representative vectors, with each vector reflecting winds in the principal directions: N, NE, E, SE, S, SW, W, and NW. Wind speeds were classified into four speed categories, plus an additional category for "CALM" winds (0 knots). Speed categories are listed in Table 1.

The value at the center of each wind rose diagram indicates the percentage of hourly winds reported as "calm." Concentric circles extending outward from the center identify five-percent increments of wind frequencies. Vectors on the wind rose indicate the frequencies (percentages) of occurrences with winds coming from a given direction; the length of each vector reflects the total percentage of hours with winds from a particular direction.

Wind vectors are composed of four segments. Segments within each vector reflect the proportion of the total directional flow that can be attributed to each of the speed classes.

Table 1: Wind-speed categories as represented on the Wind Rose.

Wind Speed Category	Wind Speeds	Location on Wind Rose
Calm	0 knots	CENTER
I	1 - 5 knots	INNER-MOST SEGMENT
II	6- 10 knots	SECONDARY SEGMENT
III	11 - 15 knots	TERTIARY SEGMENT
IV	≥ 16 knots	OUTER-MOST SEGMENT

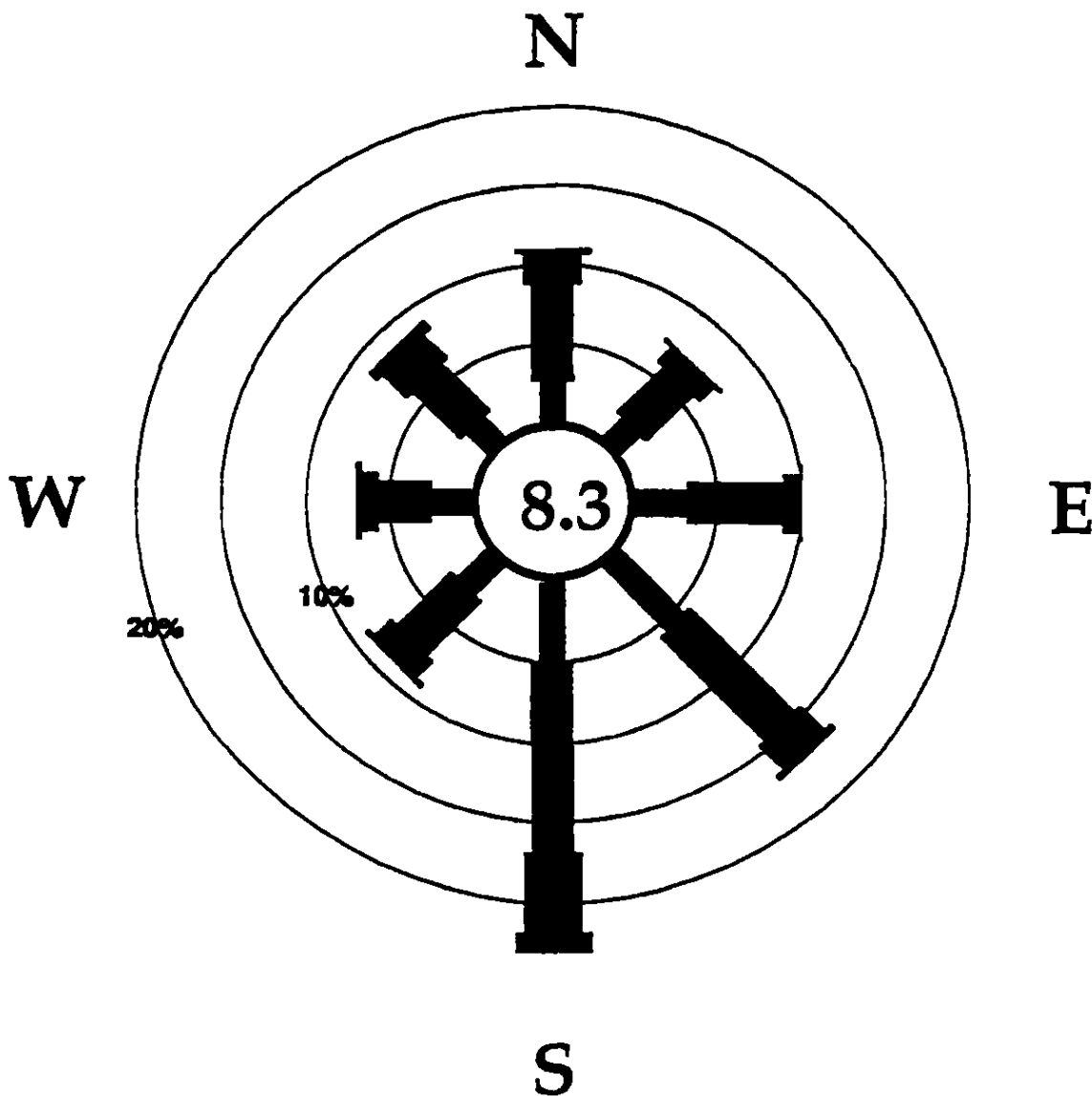
John M. Grymes III
State Climatologist

SHREVEPORT WSO AP

Annual Summary Wind Rose

1961-1980

Anemometer Ht.: 20.0 ft



Windspeed Class Designations

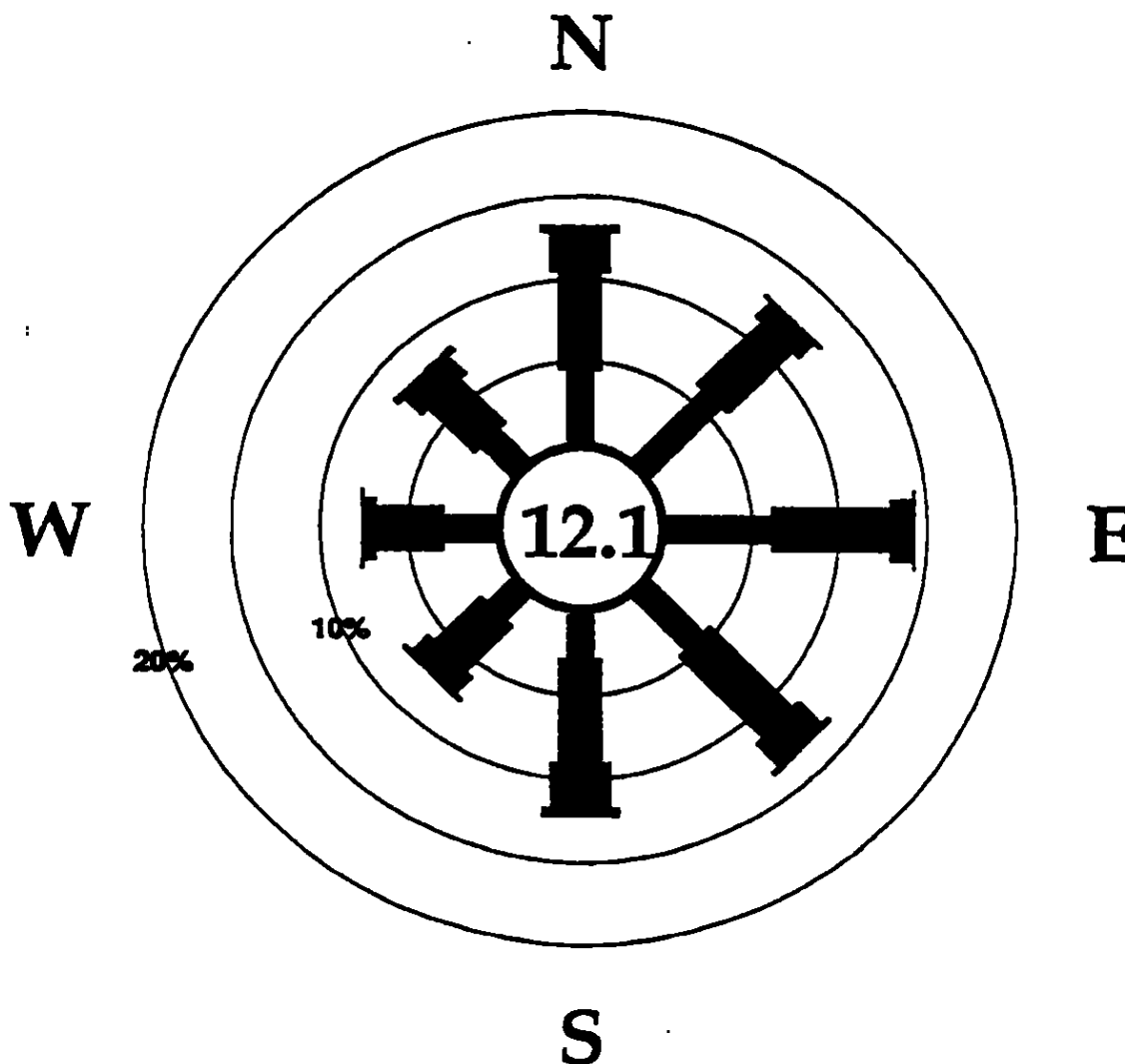


BATON ROUGE WSO AP

Annual Summary Wind Rose

1961-1980

Anemometer Ht.: 20.0 ft



Windspeed Class Designations

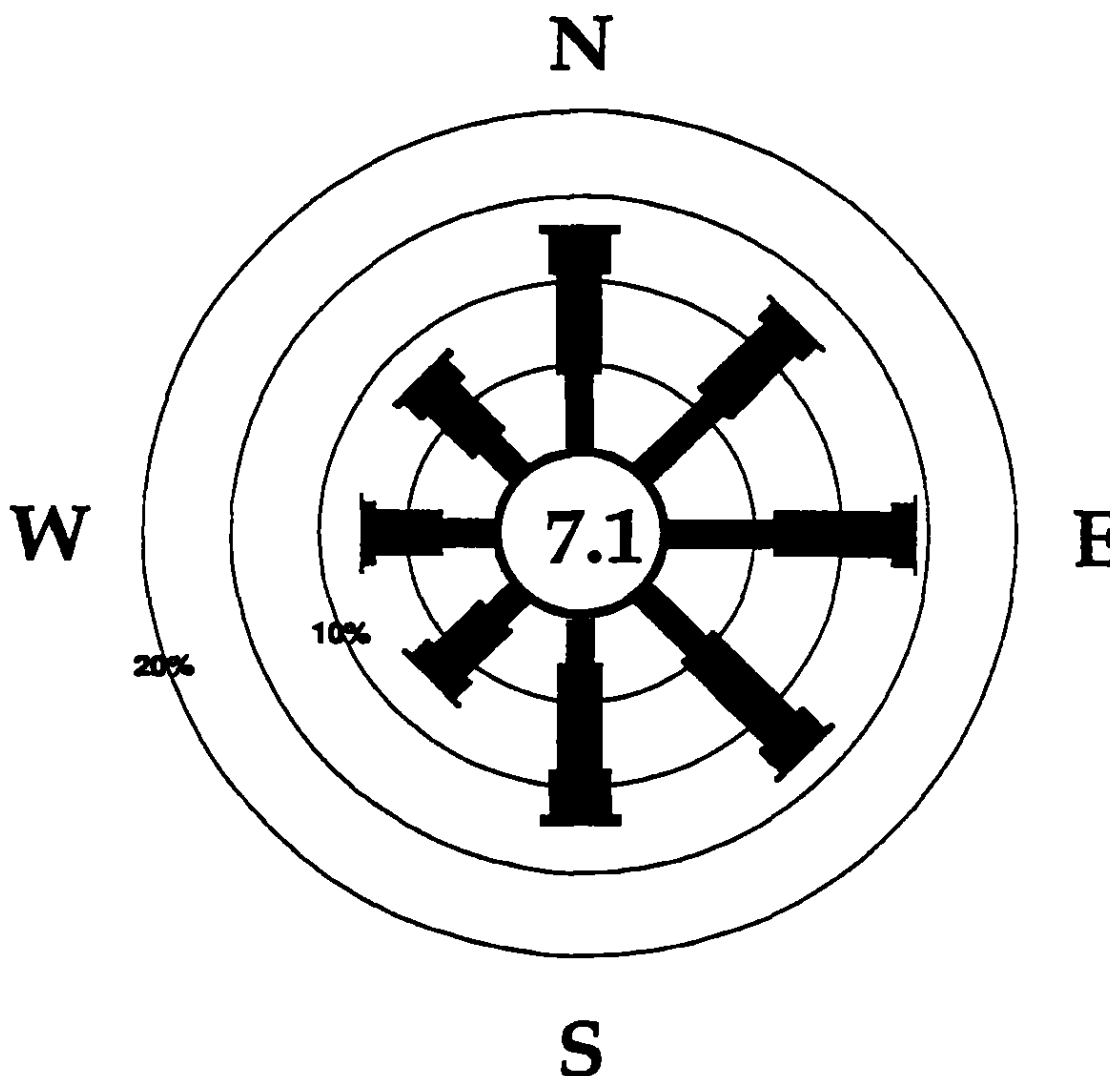


LAKE CHARLES WSO AP

Annual Summary Wind Rose

1961-1980

Anemometer Ht.: 20.0 ft



Windspeed Class Designations



APPENDIX 10
SECONDARY CONTAINMENT CALCULATIONS

SECONDARY CONTAINMENT

Concrete Burner Pad

Total volume	$\frac{\text{ft}^3}{322.6}$
Raised concrete pad	- 18
Concrete ramp to pad	- 34.6
Volume of blocks under pad	- 4.7
Burner trough	$\frac{- 12}{= 253.3 \text{ ft}^3}$
Effective containment volume converted to gallons	1894.7 gal
12 inches of rainfall on containment area	1609.0 gal
Freeboard	2.1 inches

Prep Area

Total volume	$\frac{\text{ft}^3}{240.0}$
No subtractions for objects located in the containment area	$\frac{- 0}{= 240.0}$
Effective containment volume converted to gallons	1795.0 gal

Ash Storage

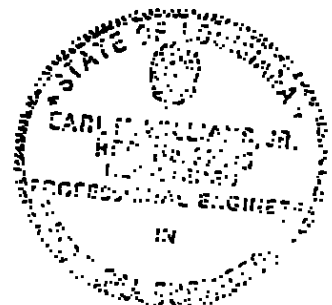
Total volume	$\frac{\text{ft}^3}{392.0}$
No subtractions for objects located in the containment area	$\frac{- 0}{392.0 \text{ ft}^3}$
Effective containment volume converted to cubic yards	14.5 yd ³



SECONDARY CONTAINMENT
(Continued)

Truck Parking/Staging Area

Total volume	$\frac{\text{ft}^3}{2184.0}$
No subtractions for objects located in the containment area	$\frac{- 0}{2184.0 \text{ ft}^3}$
Effective containment volume converted to gallons	16336.3 gal
12 inches of rainfall on containment area	12805.8 gal
10-percent of 80 55-gallon drums stored in containment area	440.0 gal
Freeboard	3.4 inches



APPENDIX 11

SAMPLE MANIFEST FORM

STATE OF LOUISIANA
DEPARTMENT OF ENVIRONMENTAL QUALITY
HAZARDOUS WASTE DIVISION
P.O. BOX 82178
BATON ROUGE, LOUISIANA 70884-2178

PLEASE PRINT OR TYPE (Form designed for use on elite (12-pitch) typewriter.)

Form Approved, OMB No. 2050-0039. Expires 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No		Manifest Document No		2. Page 1 of		Information in the shaded areas is not required by Federal law	
3. Generator's Name and Mailing Address						A. State Manifest Document Number LAA 3405215			
4. Generator's Phone ()						B. State Generator's ID			
5. Transporter 1 Company Name				6. US EPA ID Number		C. State Transporter's ID			
7. Transporter 2 Company Name				8. US EPA ID Number		D. Transporter's Phone			
9. Designated Facility Name and Site Address				10. US EPA ID Number		E. State Transporters ID			
						F. Transporter's Phone			
						G. State Facility's ID			
						H. Facility's Phone			
11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)						12. Containers No. Type		13. Total Quantity	
a.								14. Unit Wt Vol	
b.								1. Waste No	
c.									
d.									
J. Additional Descriptions for Materials Listed Above						K. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information									
<p>16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.</p> <p>If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimize the present and future threat to human health and the environment. OR, If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.</p>									
Printed/Typed Name						Signature		Month Day Year	
17. Transporter 1 Acknowledgement of Receipt of Materials						Signature		Month Day Year	
Printed/Typed Name						Signature		Month Day Year	
18. Transporter 2 Acknowledgement of Receipt of Materials						Signature		Month Day Year	
Printed/Typed Name						Signature		Month Day Year	
19. Discrepancy Indication Space									
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19									
Printed/Typed Name						Signature		Month Day Year	

IF SPILLED IN LOUISIANA CALL THE LOUISIANA HAZMAT UNIT AT 504/925-6595 (DAY OR NIGHT)

GENERATOR

TRANSPORTER

FACILITY

COPY 1

APPENDIX 12

EMERGENCY AGENCIES CORRESPONDENCE

**Thermal Treatment**

April 1, 1997

L.R. "Pop" Hataway, Sheriff
Grant Parish Sheriff's Department
P.O. Box 223
Colfax, LA 71417

Dear Sheriff Hataway:

Annually, Laidlaw Environmental Services (Thermal Treatment), Inc. (LESI) is required to provide documentation to the Louisiana Department of Environmental Quality (LDEQ) and the U.S. Environmental Protection Agency (USEPA) that arrangements for emergency services have been made with local agencies. Previously, we received confirmation indicating your willingness to provide services to LESI. We recently submitted our facility contingency plan to you. We appreciate your efforts in this regard.

Please notify me in writing within ten (10) days of receipt of this letter if for any reason you are no longer able to supply services to LESI in accordance with the facility contingency plan. If no reply is received, we will assume that your services are available in accordance with your previous response.

Thank you for your continued support.

Sincerely,


James E. Gallion, Sr.
Facility Manager

JEG:ljb

**Thermal Treatment**

April 1, 1997

Verda Volunteer Fire Department
123 Firehouse Road
Verda, LA 71481

To whom it may concern:

Annually, Laidlaw Environmental Services (Thermal Treatment), Inc. (LESI) is required to provide documentation to the Louisiana Department of Environmental Quality (LDEQ) and the U.S. Environmental Protection Agency (USEPA) that arrangements for emergency services have been made with local agencies. Previously, we received confirmation indicating your willingness to provide services to LESI. We recently submitted our facility contingency plan to you. We appreciate your efforts in this regard.

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Thank you for your continued support.

Sincerely,


James E. Gallion, Sr.
Facility Manager

JEG:ljb

**Thermal Treatment**

April 1, 1997

Mr. W.D. Richards, Chief
Colfax Volunteer Fire Department
P.O. Box 2482
Colfax, LA 71417

Dear Chief Richards:

Annually, Laidlaw Environmental Services (Thermal Treatment), Inc. (LESI) is required to provide documentation to the Louisiana Department of Environmental Quality (LDEQ) and the U.S. Environmental Protection Agency (USEPA) that arrangements for emergency services have been made with local agencies. Previously, we received confirmation indicating your willingness to provide services to LESI. We recently submitted our facility contingency plan to you. We appreciate your efforts in this regard.

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Thank you for your continued support.

Sincerely,


James E. Gallion, Sr.
Facility Manager

JEG:ljb

**Thermal Treatment**

April 1, 1997

Med Express
309 Griffith
Pineville, LA 71360

To whom it may concern:

Annually, Laidlaw Environmental Services (Thermal Treatment), Inc. (LESI) is required to provide documentation to the Louisiana Department of Environmental Quality (LDEQ) and the U.S. Environmental Protection Agency (USEPA) that arrangements for emergency services have been made with local agencies. Previously, we received confirmation indicating your willingness to provide services to LESI. We recently submitted our facility contingency plan to you. We appreciate your efforts in this regard.

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Thank you for your continued support.

Sincerely,


James E. Gallion, Sr.
Facility Manager

JEG:ljb

**Thermal Treatment**

April 1, 1997

St. Francis Cabrini Hospital
3330 Masonic Drive
Alexandria, LA 71301
Attn: Hospital Administrator

To whom it may concern:

Annually, Laidlaw Environmental Services (Thermal Treatment), Inc. (LESI) is required to provide documentation to the Louisiana Department of Environmental Quality (LDEQ) and the U.S. Environmental Protection Agency (USEPA) that arrangements for emergency services have been made with local agencies. Previously, we received confirmation indicating your willingness to provide services to LESI. We recently submitted our facility contingency plan to you. We appreciate your efforts in this regard.

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Thank you for your continued support.

Sincerely,


James E. Gallion, Sr.
Facility Manager

JEG:ljb

**Thermal Treatment**

April 1, 1997

Grant Medical Center
340 Webb Smith Drive
Colfax, LA 71417

To whom it may concern:

Annually, Laidlaw Environmental Services (Thermal Treatment), Inc. (LESI) is required to provide documentation to the Louisiana Department of Environmental Quality (LDEQ) and the U.S. Environmental Protection Agency (USEPA) that arrangements for emergency services have been made with local agencies. Previously, we received confirmation indicating your willingness to provide services to LESI. We recently submitted our facility contingency plan to you. We appreciate your efforts in this regard.

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Thank you for your continued support.

Sincerely,


James E. Gallion, Sr.
Facility Manager

JEG:ljb

**Thermal Treatment**

April 1, 1997

Director
Grant Parish Local Emergency Planning Committee
P.O. Box 223
Colfax, LA 71417

Dear Director:

Annually, Laidlaw Environmental Services (Thermal Treatment), Inc. (LESI) is required to provide documentation to the Louisiana Department of Environmental Quality (LDEQ) and the U.S. Environmental Protection Agency (USEPA) that arrangements for emergency services have been made with local agencies. Previously, we received confirmation indicating your willingness to provide services to LESI. We recently submitted our facility contingency plan to you. We appreciate your efforts in this regard.

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Thank you for your continued support.

Sincerely,


James E. Gallion, Sr.
Facility Manager

JEG:ljb

**Thermal Treatment**

April 1, 1997

Louisiana State Police
Emergency Response
P.O. Box 66614
Baton Rouge, LA 70896
Attn: Mr. Leonard Scott

Dear Mr. Scott:

Annually, Laidlaw Environmental Services (Thermal Treatment), Inc. (LESI) is required to provide documentation to the Louisiana Department of Environmental Quality (LDEQ) and the U.S. Environmental Protection Agency (USEPA) that arrangements for emergency services have been made with local agencies. Previously, we received confirmation indicating your willingness to provide services to LESI. We recently submitted our facility contingency plan to you. We appreciate your efforts in this regard.

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Thank you for your continued support.

Sincerely,


James E. Gallion, Sr.
Facility Manager

JEG:ljb

APPENDIX 13

SEISMIC STANDARDS



DEPARTMENT OF NATURAL RESOURCES

LOUISIANA GEOLOGICAL SURVEY

University Station, Box G - Baton Rouge, Louisiana 70893-4107 • (504) 388-5320

May 30, 1989

Mr. Richard Crane
R & D Fabricating and Manufacturing, Inc.
P.O. Box 482
Colfax, LA 71417

Dear Mr. Crane:

This letter is to confirm our phone conversation of today in which I indicated to you that to the best of our knowledge, there are no known active faults in western Grant Parish, Louisiana.

If I may be of further assistance, please let me know.

Sincerely,

Richard P. McCulloh
Senior Research Geologist

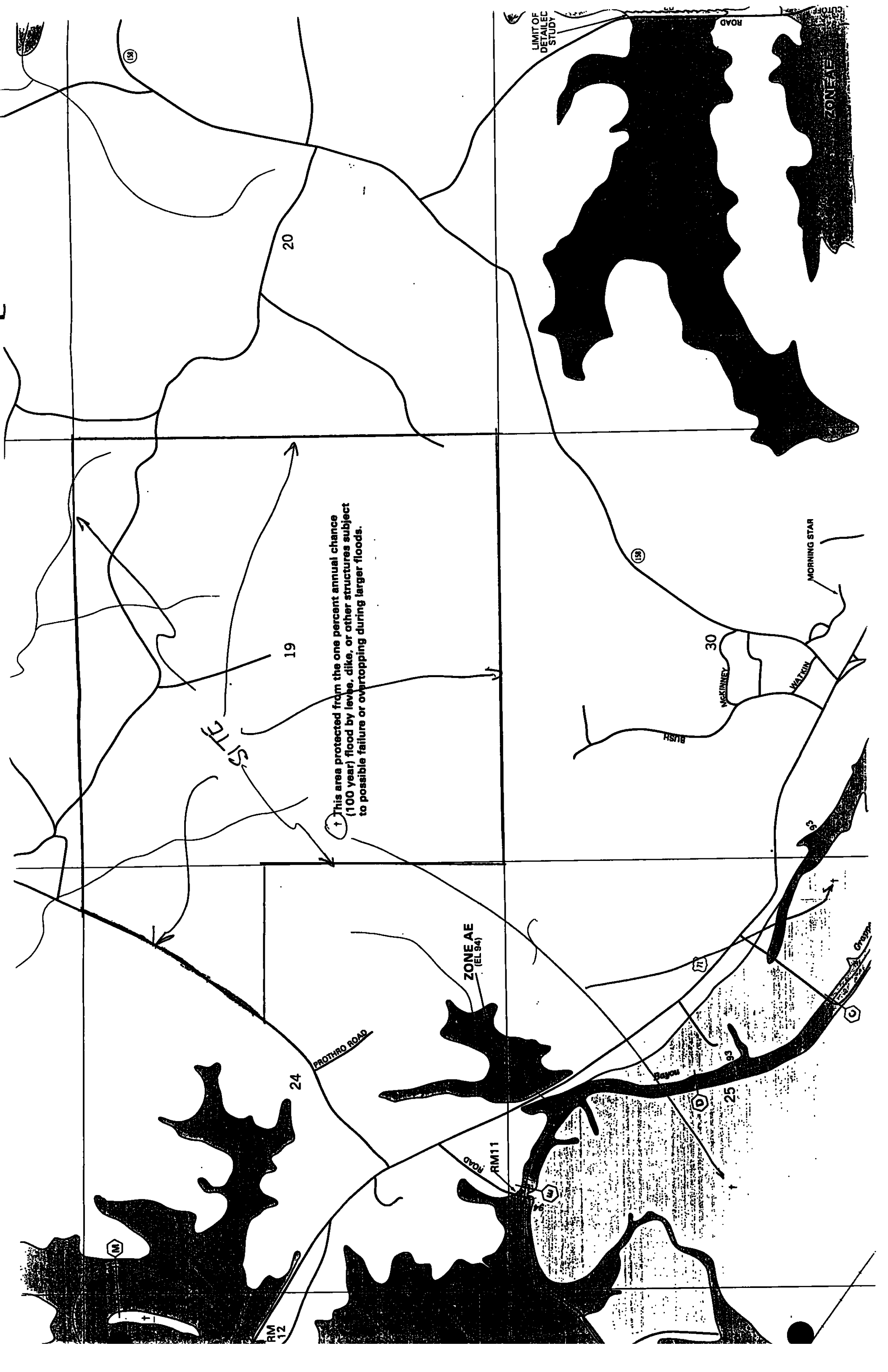
RECEIVED

JUL 6 1989

ENVIRONMENTAL
COMPLIANCE DEPT.

APPENDIX 14

FEMA INFORMATION



APPENDIX 15

IT QUESTION RESPONSE

APPENDIX 15

RESPONSES TO "IT DECISION" QUESTIONS

I. Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible?

Response:

The LESTT facility is operated to provide a safe and effective treatment option for generators of reactive hazardous waste. Only wastes classified as reactive are managed by LESTT; however, reactive wastes that are classified as such due to the potential to generate cyanide or sulfide are not accepted by the facility. In addition to wastes exhibiting the characteristic of reactivity (code D003) wastes managed by LESTT may also be classified as follows: D001; D004; D005; D006; D007; D008; D010; D011; K044; K045; K046; P009; P048; P065; P081; P105; P112; U069; U088; U096; U105; U108; U115; U117; U133; U160; and U234.

The maximum quantity of waste that can be present at the site at any time is 55,950 pounds net explosive waste. This quantity was determined in accordance with Bureau of Alcohol, Tobacco, and Firearms (ATF) regulations governing the storage of reactive wastes. All wastes are received from off-site sources; there is no other facility in the region permitted to accept these wastes.

The only hazardous wastes routinely generated by LESTT are residues from the treatment of listed reactive hazardous wastes. Residues from treating characteristic reactive (D003 only) hazardous wastes are tested to determine whether they exhibit a characteristic of a hazardous waste, and managed accordingly. No wastes remain permanently on site.

Thermal treatment of reactive hazardous waste presents the following potential adverse environmental effects:

- physical injury associated with an unplanned or uncontrolled fire or explosion;

APPENDIX 15

- direct inhalation of combustion byproducts; and
- deposition of particulate matter created during the combustion process on adjacent lands.

Each of these can become real adverse environmental effects; they are avoided as discussed below.

Risks associated with an unplanned or uncontrolled fire or explosion are minimized by strict compliance with the operating guidelines described in the LESTT hazardous waste permit application. LESTT personnel are trained in proper handling, storage, and management protocols for reactive waste (LESTT Hazardous Waste Permit Application, § 1515); updated training is provided as required. All personnel are responsible for taking precautions to prevent accidental ignition or reaction of the reactive waste (LESTT Hazardous Waste Permit Application, § 1517). Inspections are routinely conducted to ensure that operating equipment, storage vessels, treatment units, etc. are in acceptable condition (LESTT Hazardous Waste Permit Application, § 4509). Emergency/contingency protocols (LESTT Hazardous Waste Permit Application, § 1511) are re-evaluated as necessary to ensure that they are up-to-date, and that LESTT personnel are familiar with the established criteria.

In addition, the facility is designed to minimize the occurrence of unplanned or uncontrolled fires or explosions. Wastes received by LESTT are shipped in containers compliant with Department of Transportation (DOT) and ATF regulations. Storage magazines are constructed in accordance with ATF regulations governing the storage of explosive materials; minimum distances between the magazines are maintained as required (LESTT Hazardous Waste Permit Application, Chapter 21).

A risk assessment was completed in 1991 prior to constructing and operating the facility (LESTT Hazardous Waste Permit Application, Attachment 3). No unacceptable adverse environmental impacts associated with the operation of the facility were identified. A subsequent environmental assessment conducted in 1993 by LESTT confirmed that no unacceptable adverse environmental impacts could be identified (LESTT Hazardous Waste Permit Application, Appendix 8). Further, air monitoring

APPENDIX 15

and soil sampling programs conducted by LESTT in accordance with the conditions of its hazardous waste permit have not identified any real adverse environmental effects resulting from the operation of the facility (it is noteworthy that LESTT is no longer required to conduct air monitoring).

Additionally, because significant space is provided between storage and treatment units in accordance with ATF regulations, only a small percentage of the facility land area has been changed from its previously undisturbed condition.

Accordingly, the design features and operating practices of the LESTT facility have resulted in the avoidance of potential and real adverse environmental effects to the *maximum extent possible*.

II. Does a cost/benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

Response:

Thermal treatment in open burner assemblies presents the only safe and effective mechanism for deactivating many reactive hazardous wastes. Traditional incineration technologies utilize closed combustion chambers; the potential for explosions under such conditions precludes the use of such methodologies for this purpose.

R&D Fabricating and Manufacturing, Inc., the predecessor entity to LESTT, successfully demonstrated on multiple occasions that an emergency situation would develop unless it was authorized to conduct thermal treatment on reactive wastes that were accumulating at various generating sites throughout the region. The Louisiana Department of Environmental Quality (LDEQ) agreed, and issued several emergency permits to R&D to ensure that these wastes were properly managed. The need to manage these wastes in this manner (thermal treatment) remains unchanged.

With respect to positive economic effects to the local community, LESTT employs

APPENDIX 15

nine personnel on a permanent basis, with an annual payroll of approximately \$400,000. Supply and equipment purchases associated with the operation of the facility also provide a positive economic impact to the local community. Property and sales taxes paid to Grant Parish and local communities provide significant additional benefits.

No negative impacts on the value of adjacent properties have been identified, primarily because there is no disposal of waste at the LESTT facility. No increases in public costs for police/fire protection or medical facilities have been identified. To-date these entities only involvement with the LESTT facility has been associated with contingency planning; agreements are in place for emergency assistance on an as-needed basis. LESTT has had no negative impact on the local school system. In addition, since waste shipments arrive only by truck, the excellent road network in the vicinity was a significant factor in selecting the site; however, the number of deliveries each day is small, resulting in no negative impact upon the road network (LESTT Hazardous Waste Permit Application, §1503.C.1).

The closure plan for the LESTT facility will ensure that no hazardous wastes remain following closure (i.e., clean closure will be achieved). Therefore, no post closure care or monitoring will be required. No restrictions on future use of the site are anticipated.

Due to the negligible environmental impacts associated with the operation of the LESTT facility (as discussed in the response to question I hereinabove), social/economic benefits overwhelmingly outweigh environmental impact costs.

III. Are there alternative projects which would offer more protection to the environment than the proposed facility without unduly curtailing nonenvironmental benefits.

Response:

The LESTT facility was established to treat (deactivate) reactive hazardous wastes so

APPENDIX 15

that the residues could be safely land disposed. No disposal whatsoever occurs at the LESTT site; all residues are shipped off-site for land disposal.

The Louisiana Hazardous Waste Regulations specify that reactive waste must be deactivated prior to land disposal (LAC 33:V, Chapter 22). Accordingly, the waste can no longer exhibit a characteristic of reactivity prior to land disposal. Reactive wastes managed by LESTT exhibit one or more of the following characteristics:

- capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement;
- capable of detonation or explosive decomposition or reaction at standard temperature and pressure;
- capable of reacting violently with water; or
- are either forbidden, Class A, or Class B explosives as defined in LAC 33:V.101.

Incineration is not an option for deactivating the reactive wastes managed by LESTT, because of the potential for unplanned explosions under the confined conditions within the incinerator chamber. The only safe alternative is controlled open combustion such as the thermal treatment burner assemblies used by LESTT. Therefore, there are no alternatives for deactivating reactive wastes which would offer more protection to the environment than the technology employed by LESTT.

IV. Are there alternative sites which would offer more protection to the environment than the facility site without unduly curtailing nonenvironmental benefits?

Response:

One reason that the LESTT site was selected over other candidate sites is the configuration of the tract, which provided for establishing remote internal storage and treatment areas situated well away from the facility entrance and administrative

APPENDIX 15

complex. Distance between units is the key parameter for siting reactive waste storage magazines; ATF regulations specify minimum distances between areas where quantities of such wastes can be accumulated. This attribute, along with the proximity of the site to US Highway 71 (via a short distance along LA Highway 471) were among the key factors in selecting the LESTT site over the others considered.

In addition, the LESTT site is not located in or near any sensitive areas (LESTT Hazardous Waste Permit Application, § 517.T.5.a) No known historical or archeological sites are located within the site or within 1,000 feet of the facility perimeter. There are no known ecologically sensitive areas (wildlife management areas, swamps, marshes, etc.) or endangered species either within the site or within 1,000 feet of the facility perimeter. The site is not subject to inundation during a 100-year flood event (LESTT Hazardous Waste Permit Application, § 517.T.2.b). Hurricane paths have infrequently crossed Grant Parish since 1900; however, wind speeds were below hurricane strength (LESTT Hazardous Waste Permit Application, § 517.T.4.b.iii). There are no known active faults in the vicinity (LESTT Hazardous Waste Permit Application, § 517.T.1). Groundwater conditions in the area have been adequately documented, considering the nature of the activities at the facility - (LESTT Hazardous Waste Permit Application, § 517.T.3).

Land adjacent to the facility is undeveloped and well-vegetated with trees and brush (LESTT Hazardous Waste Permit Application, § 517.T.6.d). Primary land use within two miles of the facility is silvicultural; the closest farm land is approximately two miles from the facility. The estimated population within a two-mile radius of the site is 150 people. No zoning requirements apply.

The physical characteristics of the site have been well documented. A risk assessment was completed in 1991 prior to constructing and operating the facility (LESTT Hazardous Waste Permit Application, Attachment 3). No unacceptable adverse environmental impacts associated with the operation of the facility were identified. A subsequent environmental assessment conducted in 1993 by LESTT confirmed that no unacceptable adverse environmental impacts could be identified (LESTT Hazardous Waste Permit Application, Appendix 8). Further, air monitoring and soil sampling programs conducted by LESTT in accordance with the conditions

APPENDIX 15

of its hazardous waste permit have not identified any real adverse environmental effects resulting from the operation of the facility (it is noteworthy that LESTT is no longer required to conduct air monitoring).

Accordingly, there are no alternative sites which would offer more protection to the environment than the facility site without unduly curtailing nonenvironmental benefits.

V. Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing nonenvironmental benefits?

For the past several years, the LESTT facility has provided a safe and environmentally acceptable option for disposing reactive hazardous wastes. Prior to the issuance of the hazardous waste final permit to the facility, the LDEQ recognized that an emergency would develop unless the reactive wastes could be managed by thermal treatment. Accordingly, the LDEQ issued several emergency permits authorizing the operation of the facility. The LESTT facility therefore provides a significant contribution to the overall waste management plan for the state of Louisiana.

As previously stated, there are no other management options available for the treatment of wastes received by LESTT. There is no safe way to overcome the technological limitations associated with incinerating these wastes. Thermal treatment is the only technology available to safely deactivate the reactive wastes managed by LESTT.

Several quality assurance control mechanisms are established to ensure that the environment is protected. The waste acceptance protocol ensures that facility receives only those wastes that can be safely deactivated by thermal treatment. Incoming waste shipments are screened upon arrival to determine consistency with the original profile. Adherence to strict handling and operating protocols minimizes the potential for sudden, unplanned fires or explosions. Residues are managed according to solid and hazardous waste regulations.

APPENDIX 15

The LESTT thermal treatment technology has been shown to be highly effective in controlling the release of wastes or waste constituents into the environment. There are no other techniques available to further control such releases.

Accordingly, there are no mitigating measures which would offer more protection to the environment than the LESTT facility.

APPENDIX 16

STORMWATER PERMIT

U.S. Environmental Protection Agency
National Pollutant Discharge Elimination System (NPDES)
STORM WATER GENERAL PERMIT COVERAGE NOTICE

February 14, 1994

Dear Operator:

Your Notice of Intent (NOI) for the facility noted below has been processed by the U.S. Environmental Protection Agency. This facility is authorized to discharge storm water associated with industrial or construction activity under the terms and conditions imposed by EPA's NPDES storm water general permit issued for use in the state of Louisiana. Your facility's NPDES storm water permit number is LA0008143.

EPA's storm water general permit requires certain storm water pollution prevention and control measures, possible monitoring and reporting, and annual inspections. Among the conditions and requirements of this permit, you must prepare and implement a pollution prevention plan (PPP) that is tailored to your industrial or construction site. Enclosed is a summary guidance document designed to assist you in the development and implementation of your PPP. The summary is organized according to the phases of the pollution prevention planning process. A set of worksheets and an example of a pollution prevention plan are provided for your assistance. As a facility authorized to discharge under this storm water general permit, all terms and conditions must be complied with to maintain coverage and avoid possible penalties.

The information included on your NOI indicated that you are required to submit monitoring data for your facility's storm water discharges. Enclosed is monitoring and reporting guidance to assist you in the preparation of Discharge Monitoring Reports. If you have questions regarding the specific monitoring requirements that apply to your facility, please contact the EPA Regional office with permitting authority for your State. A list of EPA Regional offices with phone numbers and addresses is included at the end of the enclosed guidance.

FACILITY:

Laidlaw Env Svcs (tt) Inc
Hwy 471
Colfax, LA 71417-
3134415, 0924300

OPERATOR:

Laidlaw Env Svcs (tt) Inc
Po Box 482
Colfax, LA 71417-

If you have general questions concerning the storm water program, or need to obtain a copy of the permit, please call the Storm Water Hotline at (703) 821-4823.

See Reverse for Instructions

Form Approved. OMB No. 2540-0088

Approval expires 6-30-98

NPDES
FORMUnited States Environmental Protection Agency
Washington, DC 20460

Notice of Intent (NOI) for Storm Water Discharges Associated with Industrial Activity Under the NPDES General Permit

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a NPDES permit issued for storm water discharges associated with industrial activity in the State identified in Section II of this form. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

I. Facility Operator Information

Name: L.A.I.D.L.A.W., E.N.V., S.V.C.S., (T.T.), I.N.C. Phone: 3186273443

Address: P.O. Box 492 Status of Owner/Operator: ☒ P

City: COLFAX State: LA ZIP Code: 71417

II. Facility Site Location Information

Name: L.A.I.D.L.A.W., E.N.V., S.V.C.S., (T.T.), I.N.C.

Is the Facility Located on Indian Lands? (Y or N) ☒ N

Address: HIGWAY 471

City: COLFAX State: LA ZIP Code: 71417

Latitude: 31.3445 Longitude: 92.4300 Charter: Section: Township: Range:

III. Activity Information

MS4 Center Name:

Receiving Water Body: BAYOU, GRAPE, E.

If You are Filing as a Co-permittee,
Enter Storm Water General Permit Number:Are There Existing
Quantitative Data? (Y or N) ☒ NIs the Facility Required to Submit
Monitoring Data? (1, 2, or 3) ☒ 2SIC or Designated
Activity Code:

Primary: 4953 2nd: H2 3rd: 4th:

If This Facility is a Member of a Group
Application, Enter Group Application Number:If You Have Other Existing NPDES
Permits, Enter Permit Number:

IV. Additional Information Required for Construction Activities Only

Project
Start Date:Completion
Date:Estimated Area to be
Disturbed (in Acres):Is the Storm Water Pollution Prevention Plan
in Compliance with State and/or Local
Sediment and Erosion Plans? (Y or N) ☐

V. Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:

L.A.I.D.L.A.W., E.N.V., S.V.C.S., (T.T.), I.N.C.

Date:

1.2.10.219.3

Signature:



Copy to: [unclear]
[unclear] R4D STOP WATER

State of Louisiana

Department of Environmental Quality



Edwin W. Edwards
Governor

MAY 19 1994

William A. Kucharski
Secretary

File No. WP4883

Laidlaw Environmental Services
P.O. Box 210799
Columbia, SC 29221

RECEIVED

MAY 23 1994

Attention: Mr. E. Lin Longshore

ENVIRONMENTAL COMPLIANCE
DEPARTMENT

Gentlemen:

Subject: LWDPs Application No. WP4883 - Laidlaw Environmental Services

Your application for an LWDPs permit was received on May 13, 1994, and it has been assigned to Jeff Dauzat in the Application Verification Unit. Please note that at the time the application is processed, we may request additional information.

If you have any questions concerning this submittal, please contact Jeff Dauzat at (504) 765-2965.

Yours truly,

Audrey A. Gaudet
E. Q. Program Analyst

AG

c: Letter only:

U.S. Environmental Protection
Agency, Region VI

c: W/applicable enclosures:
EBRP Metro Council

c: W/copy of application:
Capital Regional Office
Water Quality Management Division



recycled paper

OFFICE OF WATER RESOURCES

P.O. BOX 82215

BATON ROUGE, LOUISIANA 70824-2215

AN EQUAL OPPORTUNITY EMPLOYER

STORMWATER DISCHARGES FROM NEW BURN SITE
all units in mg/L except pH (standard units)

10/17/94 8/14/95 9/19/96 4/29/97

VOLUME-MG	3.2	1.9	1.12	1.4		
BOD	<2	1	<1	3		
COD	9.6	14	<25	<25		
TOC	4.3	10.5	4	3		
pH	8.1	8.2	8.0	8.3		
O&G	<5.0	<2.0	<5	<5		
TDS	46	66	90	50		
TSS	13	1	<5	<5		
Cyanide	<0.010	0.002	<0.005	<0.005		
TKN	<0.10	2.3	0.3	0.4		
Nitrate+ Nitrite	0.36	0.201	<1	<1		
Ammonia	<0.10	0.04	<0.1	<0.1		
T. Phenols	<0.010	0.01	<0.03	<0.03		
T. Phosphorus	<0.10	0.04	<0.05	<0.05		
Sb	<0.010	<0.032	<0.05	<0.05		
As	<0.0030	0.00068	0.002	<0.002		
Ba	<0.050	<0.004	0.87	0.13		
Be	<0.0050	<0.001	<0.005	<0.005		
Cd	<0.00030	<0.005	<0.001	<0.001		
Cr	<0.010	<0.007	<0.01	<0.01		
Cu	<0.020	0.006	<0.01	0.01		
Pb	<0.0030	<0.050	<0.005	0.009		
Mg	<0.500	<0.002	2.89	0.48		
Hg	<0.00020	0.00038	<0.0002	<0.0002		
Ni	<0.040	<0.015	<0.01	<0.01		
Se	<0.0030	0.00022	<0.005	<0.005		
Ag	<0.0010	<0.007	<0.002	<0.002		
Tl	<0.0030	<0.010	<0.002	<0.002		
Mg, dissolved	<0.500	<0.002	2.93	0.46		
Benzene	<0.0010	<0.005	<0.0020	<0.0020		
Ethylbenzene	<0.0010	<0.005	<0.0020	<0.0020		
Toluene	<0.0010	<0.005	<0.0020	<0.0020		
T. Xylenes	<0.0030	<0.005	<0.0020	<0.0020		
Nitrobenzene	<0.010	<0.010	<0.010	<0.010		
2,4-dinitrotoluene	<0.010	<0.010	<0.010	<0.010		
2,6-dinitrotoluene	<0.010	<0.010	<0.010	<0.010		

APPENDIX 17

AIR PERMIT



State of Louisiana
Department of Environmental Quality



Edwin W. Edwards
Governor

CHANGE OF OWNERSHIP

William A. Kucharski
Secretary

FACILITY NAME: Laidlaw Environmental Services (Thermal Treatment), Inc.

FACILITY TYPE: Thermal Treatment

PERMIT NO.: 1120-00010-00 EIS/CDS NO.: _____ (If Applicable)

LOCATION: Colfax Grant UTM15 327.3 3492.7
(City) (Parish) Zone km E km N
3763 Highway 471 near Colfax
(Physical Location)

FORMER OWNER

COMPANY: R & D Fabricating and Manufacturing, Inc.

CONTACT: Mr. Richard Crain Manager (318) 627-3449
(Name) (Title) (Phone)

MAILING ADDRESS: P. O. Box 482 Colfax LA 71417
(Street or P. O. Box) (City) (State) (Zip Code)

NEW OWNER

COMPANY: Laidlaw Environmental Services (Thermal Treatment) 6/30/93
(Date of Transfer)

CONTACT: Mr. Joel R. Hall Environmental Manager (318) 627-3443
(Name) (Title) (Phone)

MAILING ADDRESS: 3763 Highway 471 Colfax LA 71417
(Street or P. O. Box) (City) (State) (Zip Code)

The above change in ownership is in compliance with LAC 33:III.517.G. Air Quality Division files will be updated to reflect this change.

Estelene Von Rosenberg
Assistant Secretary

7/28/95
Date

c: Southwest Regional Office

GVB:GNS



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OFFICE OF AIR QUALITY P O. BOX 82135 BATON ROUGE, LOUISIANA 70884-2135

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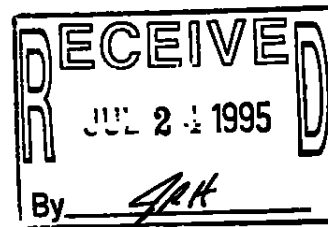
State of Louisiana
Department of Environmental Quality



Edwin W. Edwards
Governor

William A. Kucharski
Secretary

Mr. Jim Gallion
Vice President
Laidlaw Environmental Services
(Thermal Treatment), Inc.
3763 Highway 471
Colfax, Louisiana 71417



Dear Mr. Gallion:

RE: Permit modification request, thermal treatment facility,
Laidlaw Environmental Services (Thermal Treatment), Inc.,
Colfax, Grant Parish, Louisiana

This is to inform you that the permit modification request for the above referenced facility has been approved under LAC 33:III.501. The submittal was approved on the basis of the emissions reported and the approval in no way guarantees the design scheme presented will be capable of controlling the emissions as to the types and quantities stated. A new application must be submitted if the reported emissions are exceeded after operation begins. The synopsis, data sheets and conditions are attached herewith.

It will be considered a violation of the permit if all proposed control measures and/or equipment are not installed, properly operated, and maintained as specified in the application.

The permit number cited below should be referenced in future correspondence regarding this facility.

Done this 19th day of July, 1995.

Permit No.: 1120-00010-01

Very truly yours,

Gustave Van Bodungen
Gustave A. Von Bodungen
Assistant Secretary

GVB:GNS:

c: Southwest Regional Office



OFFICE OF AIR QUALITY P.O. BOX 82135 BATON ROUGE, LOUISIANA 70884-2135

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**AIR PERMIT BRIEFING SHEET
AIR QUALITY DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY**

**THERMAL TREATMENT FACILITY
LAIDLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT) INC.
COLFAX, GRANT PARISH, LOUISIANA**

I. BACKGROUND

R & D Fabricating and Manufacturing, Inc., a division of Laidlaw Environmental Services, Inc. operated a thermal treatment facility for the destruction of a number of different RCRA reactive waste (propellants and explosives) streams under Air Permit No. 1120-00010-00. Ownership was transferred to Laidlaw on June 30, 1995.

II. ORIGIN

Laidlaw Environmental Services (Thermal Treatment) Inc. submitted an application and Emission Inventory Questionnaire dated March 8, 1995 for a permit modification. Additional information dated May 16 and June 5, 1995 was also received.

III. PROJECT DESCRIPTION

The thermal treatment facility is isolated on 43 acres in a 730 acre site near the junction of Louisiana Highways 71 and 471, with the burn area at least 700 feet from the property line. Colfax the closest town, is 3.5 miles from the site.

Laidlaw thermally treats a large number of different RCRA reactive waste streams at the Colfax facility. Storage of reactive waste is in 10 magazines, one magazine truck staging area, and one truck staging/parking area. Propellants and explosives are treated in 20 circular and square metal trays utilizing diesel fuel or equivalent for ignition. Trays are 4 feet in diameter and 2 foot high or 6 feet square with 8 inch high sides. All trays have an expanded metal cover to contain any fragments. The burn pads are located on a concrete slab 130 X 700 feet that drains to a stormwater retention pond.

Thermal treatment normally lasts approximately 8 minutes. The material is placed in the metal container, diesel fuel added and the fuel is remotely ignited. Waste stream treatment batches vary from approximately 15 to 350 pounds.

Laidlaw proposes to increase the average hourly treatment rate from 30 to 164 pounds per hour and the maximum hourly treatment rate from 164 to 350 pounds per hour. Laidlaw

**AIR PERMIT BRIEFING SHEET
AIR QUALITY DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY**

**THERMAL TREATMENT FACILITY
LAIDLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT) INC.
COLFAX, GRANT PARISH, LOUISIANA**

proposes to permit the facility at existing capacity of 480,000 pounds per year and to include emissions inadvertently omitted from the previous permit. The facility was previously permitted at 75% of capacity.

Estimated emissions from the facility in tons per hour are as follows:

Pollutant	Permitted	Proposed	Change
PM ₁₀	3.9	2.4	- 1.5
SO ₂	< 0.01	-	-< 0.01
NO _x	8.8	38.9	+ 30.1
CO	2.5	6.8	+ 4.3
VOC	< 0.01	0.16	+ 0.15
HCL	3.4	4.6	+ 1.2

Speciation of VOC in tons per year is as follows:

Benzene	0.069
Toluene	0.081
Ethylbenzene	0.003
Xylenes	0.007

Estimated metal emissions in tons per year are as follows:

Antimony	0.004
Barium	0.004
Cadmium	0.001
Chromium	0.001
Lead	0.06
Nickel	0.008
Zinc	0.007

Estimated maximum annual throughput for quantities greater than 10,000 pounds per year is contained in Table 1.

IV. TYPE OF REVIEW

This project was reviewed for compliance with the Louisiana Air Quality Regulations. New Source Performance Standards and NESHAP do not apply.

V. PUBLIC NOTICE

Public notice is not required for a minor modification.

SPECIFIC CONDITIONS

THERMAL TREATMENT FACILITY
LAIDLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT), INC.
COLFAX, GRANT PARISH, LOUISIANA

1. Permittee shall comply with all the regulations of the Hazardous Waste Division.
2. Thermal treatment shall be conducted only between the hours of 8 a.m. and 5 p.m.
3. Burns shall not be conducted if windspeed is above 10 miles per hour.
4. Burns shall be remotely ignited.
5. Burn areas shall be fenced to control ingress and egress by the public. All gates shall be secured with a secure locking device. Warning signs shall be posted around the burn area.
6. Ammonium perchlorate treatment is limited to 30,000 pounds in any 12 month period. Records of daily, monthly and last twelve month treatment quantities shall be maintained on site and available for inspection by the Air Quality Division. Treatment of ammonium perchlorate in excess of 30,000 pounds in any 12 month period is a violation of the permit and must be reported to the Air Quality Division, Enforcement Section. A report showing the quantity of ammonium perchlorate treated for the preceding calendar year shall be submitted to the Air Quality Division by February 15.
7. Permittee shall limit the total hours of operation in any consecutive 12 month period to 2920 hours. Records of the daily, monthly, and last 12 months hours of operation shall be maintained on site and available for inspection by the Air Quality Division. Operating hours above the maximum listed in this specific condition for any twelve consecutive month period shall be a violation of this permit and must be reported to the Air Quality Division, Enforcement Section. A report showing the operating hours for the preceding calendar year shall be submitted to the Air Quality Division by February 15.
8. Permittee shall limit the total quantity of waste treated to 480,000 lbs in any consecutive 12 month period. Records of the monthly and last 12 months quantity treated shall be maintained on site and available for inspection by the Air Quality Division. A report showing the quantity treated for the preceding calendar year shall be submitted to the Air Quality Division by February 15.

TABLE 1
MAXIMUM ESTIMATED ANNUAL THRUPUT QUANTITIES

THERMAL TREATMENT FACILITY
LAIDLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT), INC.
COLFAX, GRANT PARISH, LOUISIANA

Product	Pounds/year
Air bag initiators	50,000
Ammonium perchlorate	30,000
Ammunition	200,000
Black powder	10,000
RDX	40,000
Detonators/blasting caps	10,000
Flares and flare waste	100,000
High explosives	10,000
HMX	10,000
PETN	10,000
TNT	80,000

**LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS**

- I. This permit is issued on the basis of the emissions reported in the application for approval of emissions and in no way guarantees that the design scheme presented will be capable of controlling the emissions to the type and quantities stated. Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501. If the emissions are determined to be greater than those allowed by the permit or if proposed control measures and/or equipment are not installed or do not perform according to design efficiency, an application to modify the permit must be submitted.
- II. The permittee is subject to all applicable provisions of the Louisiana Air Quality Regulations. Violation of the terms and conditions of the permit constitutes a violation of these regulations.
- III. The attached data sheets establish the emission and operating limitations and are a part of the permit. The synopsis and data sheets are based on the application and Emission Inventory Questionnaire dated March 8, 1995. Additional information dated May 16 and June 5, 1995 was also received.
- IV. This permit shall become invalid, for the sources not constructed, if:
 - A. Construction is not commenced, or binding agreements or contractual obligations to undertake a program of construction of the project are not entered into, within two (2) years (18 months for PSD permits) after issuance of this permit, or;
 - B. If construction is discontinued for a period of two (2) years (18 months for PSD permits) or more.

The administrative authority may extend this time period upon a satisfactory showing that an extension is justified.

This provision does not apply to the time period between construction of the approved phases of a phased construction project. However, each phase must commence construction within two (2) years (18 months for PSD permits) of its projected and approved commencement date.
- V. The permittee shall submit semi-annual reports of progress outlining the status of construction, noting any design changes, modifications or alterations in the construction schedule which have or may have an effect on the emission

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

rates or ambient air quality levels. These reports shall continue to be submitted until such time as construction is certified as being complete. Furthermore, for any significant change in the design, prior approval shall be obtained from the Louisiana Air Quality Division.

- VI. The permittee shall notify the Department of Environmental Quality, Air Quality Division within ten (10) calendar days from the date that construction is certified as complete and the estimated date of start-up of operation. The appropriate Regional Office shall also be so notified within the same time frame.
- VII. Any emissions testing performed for purposes of demonstrating compliance with the limitations set forth in paragraph III shall be conducted in accordance with the methods described in the Division's test manual or any other methods approved by the U.S. EPA. Any deviation from or modification of the methods used for testing shall have prior approval from the Louisiana Air Quality Division.
- VIII. The emission testing described in paragraph VII above, or established in the specific conditions of this permit, shall be conducted within sixty (60) days after achieving normal production rate, but in no event later than 180 days after initial start-up (or restart-up after modification). The Air Quality Division Surveillance Section shall be notified at least (30) days prior to testing and shall be given the opportunity to conduct a pretest meeting and observe the emission testing. The test results shall be submitted to the Air Quality Division within forty-five (45) days after the complete testing. As required by LAC 33:III.913, the permittee shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities for proper determination of the emission limits.
- IX. The permittee shall, within 180 days after start-up of each project or unit, report to the Louisiana Air Quality Division any significant difference in operating emission rates as compared to those limitations specified in paragraph III. This report shall also include, but not be limited to, malfunctions and upsets.
- X. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of at least five (5) years.
- XI. If for any reason the permittee does not comply with, or will not be able to comply with, the emission limitations specified in this permit, the permittee shall provide the

**LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS**

Air Quality Division with the following information in writing within five (5) days of such conditions:

- A. Description of noncomplying emission(s);
 - B. Cause of noncompliance;
 - C. Anticipated time the noncompliance is expected to continue, or, if corrected, the duration of the period of noncompliance;
 - D. Steps taken by the permittee to reduce and eliminate the noncomplying emissions; and
 - E. Steps taken by the permittee to prevent recurrences of the noncomplying emissions.
- XII. Permittee shall allow the authorized officers and employees of the Department of Environmental Quality, at all reasonable times and upon presentation of identification, to:
- A. Enter upon the permittee's premises where regulated facilities are located, regulated activities are conducted or where records required under this permit are kept;
 - B. Have access to and copy any records that are required to be kept under the terms and conditions of this permit, the Louisiana Air Quality Regulations, or the Act;
 - C. Inspect any facilities, equipment (including monitoring methods and an operation and maintenance inspection), or operations regulated under this permit; and
 - D. Sample or monitor, for the purpose of assuring compliance with this permit or as otherwise authorized by the Act or regulations adopted thereunder, any substances or parameters at any location.
- XIII. If samples are taken under Section XII.D. above, the officer or employee obtaining such samples shall give the owner, operator or agent in charge a receipt describing the sample obtained. If requested prior to leaving the premises, a portion of each sample equal in volume or weight to the portion retained shall be given to the owner, operator or agent in charge. If an analysis is made of such samples, a copy of the analysis shall be furnished promptly to the owner, operator or agency in charge.
- XIV. The permittee shall allow authorized officers and employees of the Department of Environmental Quality, upon presentation of identification, to enter upon the permittee's premises to investigate potential or alleged violations of the Act or the rules and regulations adopted

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

thereunder. In such investigations, the permittee shall be notified at the time entrance is requested of the nature of the suspected violation. Inspections under this subsection shall be limited to the aspects of alleged violations. However, this shall not in any way preclude prosecution of all violations found.

- XV. The permittee shall comply with the reporting requirements specified under LAC 33:III.918 as well as notification requirements specified under LAC 33:III.927.
- XVI. In the event of any change in ownership of the source described in this permit, the permittee and the succeeding owner shall notify the Louisiana Air Quality Division, within ninety (90) days after the event, to amend this permit.
- XVII. Typical emissions associated with routine operations that are under control upon release, that are predictable in nature, and that are quantifiable as described in this permit application, are considered authorized discharges. Any significant deviation from the emissions specified in the permit application for such discharges, by event, shall be reported to the department according to LAC 33:I.3901. Actual emissions resulting from such activities must be reported to the department on an annual basis. These emissions are not reflected in the permit totals as they are short term and/or intermittent in duration and have no significant impact on air quality. Examples of such events include but are not limited to cleaning equipment, startups, shutdowns, opening off-line equipment (dual units), and releases to control devices such as flares or incinerators. This permit condition does not authorize the maintenance of a nuisance or a danger to public health and safety.

AIR QUALITY DATA SHEET

PAGE 1

THERMAL TREATMENT FACILITY LAIDLAW ENVIRONMENTAL SERVICES COLFAX, GRANT PARISH, LOUISIANA

Location of plant: 15 UTM: 327.3 Km E 3492.7 Km N

Description of location: 3763 Highway 471 near Colfax

Estimated starting date Estimated starting operation

of construction _____ will begin Operating

Type of Dispersion Calculations Used: "

EFFECTS ON AMBIENT AIR

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Air Quality Standard (NAAQS)
-----------	-------------	--------------------------------------------------	----------------------------------------------

NEW _____ OR MODIFIED x EMISSION SOURCES

Thermal Treatment
(Type of Source)

Emission Point No.	Description	Operating Rate (Max)	Operating Schedule		
			H/D	D/W	W/Y

001	Thermal Treatment Units	350 lbs/hr Total	8	7	52
-----	-------------------------	------------------	---	---	----

AIR QUALITY DATA SHEET
PAGE 2

THERMAL TREATMENT FACILITY
LAIDLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT), INC.
COLFAX, GRANT PARISH, LOUISIANA

MAXIMUM/AVERAGE EMISSION RATES ARE LISTED IN LB/HR

Emission Point No.	PM-10	SO ₂	Permitted Emissions NO _x	VOC	CO	OTHER	HEIGHT Feet	TEMP. °F	FLOW RATE CFM
001	3.5/1.7	-	57.0/26.7	0.22/0.16	9.9/4.7	64.8/3.2 HCl	2	NA	NA

AIR QUALITY DATA SHEET
PAGE 3

THERMAL TREATMENT FACILITY
LAIDLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT), INC.
COLFAX, GRANT PARISH, LOUISIANA

Emission Point No.	PM-10	SO ₂	TONS PER YEAR			
			NO _x	VOC	CO	OTHER
001	2.4	-	38.9	0.16	6.8	4.6 HCL

ATTACHMENT 1

**FINAL SOURCE CHARACTERIZATION PLAN
FOR THE R&D THERMAL TREATMENT SYSTEM
ENSR, SEPTEMBER 1990**

ATTACHMENT 1
FINAL SOURCE CHARACTERIZATION PLAN
FOR THE R&D THERMAL TREATMENT SYSTEM

Attached are the cover page and the table of contents from the Final Source Characterization Plan. The Final Source Characterization Plan was submitted to the LDEQ in September 1992 as Attachment 2 to Volume III of the Revised RCRA Part A and Part B Permit Application - Subpart X - Miscellaneous Units. The Final Source Characterization Plan is therefore already a part of the regulatory file and may be viewed there.

R & D Manufacturing, Inc.

Colfax, Louisiana



**Final Source Characterization
Plan for the R & D Thermal
Treatment System**

**ENSR Consulting and Engineering
(Formerly ERT)**

September 1990

Document Number 3246-001-200

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ATTACHMENT 2

**FINAL TECHNICAL SUPPORT DOCUMENT
FOR THE R&D THERMAL TREATMENT SYSTEM**

ATTACHMENT 2
FINAL TECHNICAL SUPPORT DOCUMENT
FOR THE R&D THERMAL TREATMENT SYSTEM

Attached are the cover page and the table of contents from the Final Technical Support Document. The Final Technical Support Document was submitted to the LDEQ in September 1992 as Attachment 4 to Volume III of the Revised RCRA Part A and Part B Permit Application - Subpart X - Miscellaneous Units. The Final Technical Support Document is therefore already a part of the regulatory file and may be viewed there.

R&D Manufacturing, Inc.

Colfax, Louisiana

Final Technical Support
Document for the R&D
Thermal Treatment System

ENSR Consulting and Engineering

April 1991

Document Number 3246-001-630(284)

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ATTACHMENT 3

**FINAL RISK ASSESSMENT PROTOCOL
FOR THE R&D THERMAL TREATMENT SYSTEM**

R & D Manufacturing, Inc.

Colfax, Louisiana



**Final Health Risk Assessment
Protocol for the R & D
Thermal Treatment System**

**ENSR Consulting and Engineering
(Formerly ERT)**

September 1990

Document Number 3246-001-500

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1.0 INTRODUCTION

ENSR Consulting and Engineering has been retained by R&D Fabricating and Manufacturing, Inc. located in Colfax, Louisiana to prepare a risk assessment protocol for a Subpart X permit for an open explosives thermal treatment system. The purpose of the risk assessment is to provide estimates of the off-site environmental impacts from the facility.

Presently, R&D thermally treats a large number and variety of different RCRA reactive waste streams. Examples of major reactive waste streams destroyed at the R&D facility includes:-

- Ammunition,
- Flares,
- High Explosives and Oil-Well Shaped Charges,
- Air Bag Initiators.

Propellants and explosives are treated in circular, 4' diameter cement bunkers utilizing diesel fuel for ignition. Most thermal treatment at R&D is approximately 8 minutes per batch. Waste stream treatment batches per unit vary from approximately 15 to 30 lbs/hr.

The target compounds that have been identified for inclusion in the risk assessment program include:

- Trace elements - Al, Ba, Cd, Cr, Cu, Ni, Pb, Sb, Se, and Zn,
- Polycyclic aromatic hydrocarbons (benzo(a)pyrene, benzo(e)pyrene, benzo(j)fluoranthene, chrysene, benzo(k)fluoranthene, benzo(b)fluoranthene, coronene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene),
- Nitro-substituted polycyclic aromatic hydrocarbons (1-nitropyrene),
- RDX (Cyclotrimethylenetrinitramine), DNT (2,4 dinitrotoluene, 2,6 dinitrotoluene), TNT (2,4,6 trinitrotoluene),
- Volatile organic compounds, primarily benzene, toluene, xylenes, and ethylbenzene.

The emission rates for the above list of chemicals will be developed from a source characterization program. The emission products from the thermal treatment system will be subject to air dispersion modeling based on typical plume characteristics for the R&D operations. The estimated environmental concentrations developed from the air dispersion modeling will provide the necessary input for estimating off-site impacts from the thermal treatment system.

The present risk assessment protocol document provides U.S. EPA with an overall description of the air dispersion modeling and health risk assessment (HRA) approaches that ENSR will utilize to evaluate the off-site environmental impacts from the R&D thermal treatment system.

2.0 AIR DISPERSION MODELING

The potential air quality impacts resulting from the operation of the thermal treatment system will be estimated using an air quality dispersion model approved by the U.S. EPA and LDEQ. An air quality model is a set of mathematical equations which relates the release of air pollutants to corresponding concentrations of pollutants in the ambient air taking into consideration the dispersive characteristics of the atmosphere.

2.1 Model Selection

The suitability of an air quality dispersion model for a particular application is dependent upon several factors. In this study four selection criteria will be evaluated. These criteria are:

- dispersion environment,
- source type,
- averaging period of concern, and
- availability of representative meteorological data.

2.1.1 Dispersion Environment

Land use within a 3 kilometer radius of the facility was examined in accordance with the land use classifications of Auer (1978). Areas representative of urban and rural environments were identified from U.S. Geologic Survey (USGS) topographic maps. The dispersion environment surrounding the R&D facility is predominantly rural, therefore, rural dispersion coefficients will be used in the model analysis.

2.1.2 Source Type

The thermal treatment system at the R&D facility presents an unusual source type. The thermal treatment system consist of circular 4 ft diameter cement bunkers. The wastes are placed in the bunkers and ignited using diesel fuel for ignition. The thermal treatment process lasts approximately 8 minutes. The wastes burn at relatively high temperatures and initial observations of the process indicate that there is a substantial plume rise due to the high plume buoyancy.

The thermal treatment system will be modeled as a volume source. The initial vertical dimension, σ_{z0} , and the initial horizontal dimension, σ_{y0} , will be calculated according to the guidance in the

Industrial Source Complex Dispersion Model User's Guide (EPA, 1987) The initial vertical dimension will be based on observation of plume rise made during the source testing program.

2.1.3 Averaging Period

The purpose of the dispersion model analysis is to support the health risk assessment. The health risk assessment to be performed in this study will focus on the long-term chronic affects. Therefore, a dispersion model which predicts long-term, i.e., annual average concentrations will be used in this study.

2.1.4 Meteorological Data

Meteorological data required for long-term dispersion modeling consist of joint frequency (STAR) distributions of wind speed, wind direction, and atmospheric stability. The available STAR distributions include one year (1973-1974) of data from the Alexandria, LA airport. The National Climatic Center indicated that additional hourly data is available from the Alexandria, LA airport that can be placed into the STAR format.

2.1.5 Summary of Model Selection

Based on the above discussion, the EPA Industrial Source Complex long-term (ISCLT) model will be used in this analysis. This model has the following capabilities which will be used in this analysis:

- ability to simulate rural dispersion,
- ability to simulate volume source types, and
- long-term mode using STAR meteorological distribution.

The regulatory default mode of ISCLT will be used in this study.

2.2 Source Data

The thermal treatment system will be modeled as a volume source. The required source inputs for a volume source are:

- emission rate,
- location,
- release height,
- initial vertical dimension,

- initial horizontal dimension.

The emission rate will be based on the source characterization study. Annual emissions will be estimated based on total annual throughput of each waste stream. Initial vertical dimension will be based on average plume rise observed during the source characterization study. Initial horizontal dimension, although input to the ISCLT model is not used in the calculation of concentrations since this model in its long-term mode averages the horizontal concentration over the sector width.

2.3 Receptor Data

Receptors will be arranged in a polar style receptor grid centered on the thermal treatment system. The polar grid will consist of 16 radials centered on each of the 16 wind direction sectors of the STAR frequency distribution and 10 receptor rings spaced 100 meters apart. The first receptor ring in each radial direction will start at the nearest fenceline distance in that sector. No receptors will be placed within fenced plant property. Receptor heights will be identified from USGS topographic maps according to accepted EPA techniques.

3.0 HEALTH RISK ASSESSMENT

The human health risk assessment (HRA) will be conducted according to the U.S. EPA risk assessment guidelines of 1986 (EPA/600/8-87-045). The U.S. EPA guidelines include the HRA recommendations of the National Research Council. The HRA includes the following steps.

1. **Hazard Identification:** Selection of chemicals measured in the source characterization program for which sufficient exposure could lead to adverse human health effects.
2. **Dose-Response Assessment:** Determination of the relationship between the magnitude of exposures and the occurrence of specific health effects for each chemical.
3. **Exposure Assessment:** Determination of the potential human exposures to specific airborne pollutants emitted by the facility.
4. **Risk Characterization:** Description of the nature and magnitude of the health risk associated with exposure to each chemical.

The following discussion provides a brief description of the approach used to satisfactorily complete each of the above steps.

3.1 Hazard Identification

The substances included in the R&D thermal treatment source characterization program includes two classes of emission products:

- Undestroyed waste and container constituents; this includes RDX, DNT, TNT and trace metals (Al, Ba, Cd, Cr, Cu, Ni, Pb, Sb, Se, and Zn),
- Products of incomplete combustion (PICs); this includes polycyclic aromatic hydrocarbons (PAHs), nitro-substituted PAHs and volatile organic compounds (VOCs).

These chemicals were selected as the target substances in the source characterization program, in part, due their known, suspected, or potential chronic human health effects. The HRA will include both the substances discussed above that are found in measurable quantities (i.e., above the sample collection and analytical method detection limits) and those that are not detectable

during the source characterization study. Those contaminants found below the method detection limits will be set at the detection limit value for inclusion in the HRA.

3.2 Dose-Response Assessment

In the present HRA, Reference Doses (RfDs) and Cancer Potency Factors (CPF) will be selected from "U.S. EPA Health Effects Assessment Summary Tables - Fourth Quarter FY 1989, 10/89".

Additional CPF data regarding TNT was provided by EPA Region VI (Roberts, W.C. Undated. Health Effects and Risk Assessment of Munitions. ODW-USEPA. Unpublished Presentation Notes). This information is summarized for the target compounds in Table 3-1. Both the Cu and Pb RfD were developed by ENSR from existing environmental standards. The drinking water standard for Cu was utilized to develop a RfD for this chemical, while the Pb RfD was derived from the NAAQS of $1.5 \mu\text{g}/\text{m}^3$ on a 90 day average basis.

For the present HRA, only 10% of the total Cr values will be assumed to be in the form of hexavalent Cr. In a recent U.S. EPA report on hazardous waste incineration, "Technical Background Document for Control of Metals and HCl Emissions from Hazardous Waste Incinerators, OSW, 8/89", hexavalent Cr emissions were assumed to be 10% of the total Cr emissions for the purposes of impact assessment. This assumption regarding the relative percent emissions of hexavalent Cr is conservative for the R&D thermal treatment system. For example, a recent U.S. EPA document "Technical Support Document for the Incineration of Sewage Sludge" indicates that U.S. EPA is assuming for regulation development that a reasonable, worst case sewage sludge incineration emission factor for hexavalent Cr is 1% of the total Cr emissions. Further supporting U.S. EPA data suggests that combustion of residual and distillate oils results in a hexavalent Cr emission rate that is 0.6% of the total Cr emitted from the tested sources (EPA 1989. Estimating Air Toxics Emissions from Coal and Oil Combustion Sources. EPA-450/2-89-001).

Presently, U.S. EPA has not published RfDs and/or CPFs for the target PAHs and 1-NO₂ pyrene. For the purposes of the present HRA, ENSR will utilize the RfD for naphthalene for non-carcinogenic PAHs and the CPF for coke oven emissions for carcinogenic PAHs and 1-NO₂ pyrene.

3.3 Exposure Assessment

Initially, the exposure assessment for the R&D thermal treatment system will focus on the Maximum Exposed Individual (MEI). Depending on the outcome of this very conservative approach, further refinements of the exposure assessment may take place. The exposure assessment provides an indication of the long term dose received by the population from the

TABLE 3-1

RFDs AND CPFs FOR THE TARGET PARAMETERS^a

<u>Chemical</u>	<u>RfD (mg/kg/day)</u>	<u>CPF (mg/kg/day¹)</u>
Al	Data Inadequate	NA
Ba	1E-4	NA
Cd	1E-3 ^b	6.1
Cr	1 ^c	41
Cu	3.3E-2 ^d	NA
Ni	2E-2	8.4E-1 ^h
Pb	4.3E-1 ^e	NA
Sb	4E-4 ^f	NA
Se	3E-3	NA
Zn	2E-1	NA
BaP	NA	2.2 ⁱ
BeP	See Below ^g	
BkF	NA	
BbF	NA	
Cor	See Below ^g	
IcdP	NA	
DbahA	NA	
1-NO ₂ Pyrene	NA	
RDX	3E-3	1.1E-1
DNT	NA	6.8E-1
TNT	NA	3E-1
Benzene	NA	2.9E-2
Ethylbenzene	1E-1	NA
Toluene	3E-3	NA
Xylenes	2	NA

a All Values From U.S. EPA Health Effects Summary Tables 4th Quarter 1989, except TNT which was provided by EPA Region VI.

b Ingestion RfD for Cd for food.

c Ingestion RfD for Trivalent Cr.

d RfD developed for Cu based on acceptable water conc of 1.3 mg/l and a 70 kg human with a drinking rate of 2 lpd.

e RfD for Pb derived from NAAQS of 1.5 µg/m³ and a 70 kg human with an inhalation rate of 20 m³/day.

f Ingestion RfD for Sb metal.

g Benzo(e)pyrene and Coronene are considered non-carcinogens; thus the ingestion RfD for naphthalene, 4E-3 mg/kg/day, is utilized in the HRA.

h Inhalation CPF for Ni based on Ni refinery dust.

i CPF for total carcinogenic PAHs and 1-NO₂ pyrene based on CPF for coke oven emissions, which is called coal tars in U.S. EPA Health Effects Summary Tables 4th Quarter 1989. All of the above PAHs, except benzo(e)pyrene and coronene, and 1-NO₂ pyrene are considered carcinogenic, however, U.S. EPA has not published individual CPFs for these pollutants.

actions of a specific facility. The exposure assessment in the present HRA will follow the U.S. EPA guidelines found in "Risk Assessment Guidance for Superfund. Volume I. Human Health Evaluation. EPA/540/1-89-002".

The exposure pathways for the present analysis will include only direct intake routes. Direct exposure routes in the present HRA includes inhalation of the target compounds. Indirect exposure routes include the ingestion of soil, vegetation and fish which have been contaminated through plume deposition, and chemical transport and uptake. Conservative inhalation exposure models, such as those contained in EPA/540/1-89-002, will be utilized for estimating human exposures to the airborne emissions from the R&D thermal treatment system.

3.4 Risk Characterization

Hazard indices and estimated lifetime excess cancer risks were generated for the appropriate chemicals based on the Maximum Exposed Individual (MEI) (TABLE 3). The hazard indices are applied to non-carcinogenic chemicals and represent a comparison between the estimated dose for the MEI and the RfD:

$$(\text{Est. dose for the MEI} / \text{RfD}) = \text{Hazard index}$$

Hazard index values less than 1.0 indicate that adverse non-carcinogenic health effects are not expected to result for the MEI.

The estimated lifetime excess cancer risks for individual chemicals were determined as follows:

$$(\text{Est. dose for the MEI} * \text{CPF}) = \text{Lifetime Cancer Risk}$$

The lifetime excess cancer risks for individual chemicals and the total number of carcinogenic emission products are evaluated based on the assumption that any estimated cancer risks for the MEI that are less than or equal to one in a million ($1\text{E-}6$) are considered small. The initial risk analysis will utilize an individual chemical, $1\text{E-}6$ lifetime cancer risk level goal. This risk assessment goal is extremely conservative. As a comparison, the U.S. EPA has recently developed a National Emission Standard for Hazardous Air Pollutants (NESHAPs) limit for benzene from coke by-product facilities utilizing a $4\text{E-}4$ excess estimated cancer risk level for the MEI determined during regulation development.

4.0 REFERENCES

1. U.S. EPA 1987. The Health Risk Assessment Guidelines of 1986. (EPA/600/8-87-045).
2. U.S. EPA 1989. Health Effects Assessment Summary Tables - Fourth Quarter FY 1989, 10/89. OERR 9200.6-303-(89-4).
3. U.S. EPA 1989. Technical Background Document for Control of Metals and HCl Emissions from Hazardous Waste Incinerators, OSW, 8/89.
4. U.S. EPA 1989. Technical Support Document for the Incineration of Sewage Sludge. OWRS.
5. U.S. EPA 1989. Estimating Air Toxics Emissions from Coal and Oil Combustion Sources. EPA-450/2-89-001.
6. U.S. EPA 1989. Risk Assessment Guidance for Superfund. Volume I. Human Health Evaluation. EPA/540/1-89-002.

ATTACHMENT 4

RISK ASSESSMENT PROTOCOL CORRESPONDENCE



Formerly ERT

September 5, 1990

**ENSR Consulting
and Engineering**

Somerset Executive Square I
One Executive Drive
Somerset, NJ 08873
(201) 560-7323

Mr. William K. Honker
Chief
RCRA Permits Branch
USEPA
Region 6
1445 Ross Avenue
Suite 1200
Dallas, TX 75202-2733

**Subject: Comments Regarding USEPA's Notice of Deficiency (NOD) for the R&D
Fabricating and Manufacturing, Inc. Source Characterization Plan**

Dear Mr. Honker:

In response to the above referenced NOD, ENSR Consulting and Engineering has prepared a point-by-point response to the USEPA NOD for the R&D facility.

- 1 - A risk assessment protocol has been prepared for the evaluation of the impacts from the R&D facility operations. This protocol includes the target chemicals, air dispersion models, and the impact criteria to be utilized to evaluate off-site impacts from the facility. The risk assessment is scoped to address human inhalation exposures as a result of air emissions from the facility. ENSR's previous discussions with USEPA personnel, Chet Ozmund and Jon Mack, suggested that the agency was only interested in human inhalation health risks associated with emissions from the R&D facility.
- 2 - The source characterization plan includes a listing of all wastes that will be treated during the monitoring program. Under separate cover, Laidlaw Environmental Services has provided USEPA with two volumes describing the chemical composition of the waste streams.
- 3 - Appendix C contains the SOP for filter processing. This Appendix is included in the attached source characterization plan.
- 4 - Each of the chemical constituents listed in item #4 of the NOD were evaluated by ENSR. In the revised source characterization program for the R&D facility, DNT and TNT have been added to the list of the chemical constituents. The following substances were not included in the source characterization program based on the information shown below:

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<u>Compound</u>	<u>Reason for Exclusion</u>
ZnCl	To be measured as Zn
NC	Not Toxic
TNG	Not covered in standard analytical methods
HMX	Very low toxicity, low anticipated throughput quantities, i.e. < 10,000 lbs/yr
White Phos.	Very unstable, no validated sampling procedure
Sodium Azide	Very unstable, no validated sampling procedure
DNB	Not in major waste streams, i.e. < 1,000 lbs/yr
DIMP	Not in major waste streams, i.e. < 100 lbs/yr
DMMP	Not in major waste streams, i.e. < 100 lbs/yr
NG	Not in major waste streams, i.e. < 100 lbs/yr
Hexachloro- ethane	Not in major waste streams, i.e. < 100 lbs/yr

Representatives from USEPA Region VI asked ENSR to provide further elaboration regarding our decision not to include HMX in the source characterization program. According to information provided to ENSR by USEPA Region VI personnel, HMX is approximately 200 times less toxic than RDX and TNT based on lifetime human exposures. Information provided to ENSR by R&D suggested that the total maximum annual quantity of HMX to be received by the facility will not exceed 10,000 lbs/yr.

- 5 - The source characterization plan includes PICs: VOCs, PAHs and nitro-PAHs. The formation of novel explosives during the thermal treatment process appears to be a rather unlikely possibility given the reactivity of these materials under conditions of elevated temperatures. The source characterization program is not a research project. The purpose of the program is develop information that can be utilized to develop plausible estimates of the off-site impacts from the R&D thermal treatment operations. The inclusion of chemicals which have not been characterized in the waste streams or in thermal treatment by-products is beyond the scope of the R&D source characterization program.
- 6 - HCl releases from the thermal treatment of ammonium perchlorate can be estimated by utilizing a worst-case materials balance approach. Based on information provided to ENSR by R&D, the maximum, annualized worst-case emission rate for HCl is approximately 9,200 lbs/yr and on a worst-case hourly basis, a HCl emission rate of 9.2 lbs/hr.

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- 7 - The use of a "tracer", such as SF_6 , to confirm that the plume is intercepted by the samplers is not appropriate for the R&D operations. Based on the release characteristics of the thermal treatment plumes at R&D, it is unlikely that the passive release of a "tracer" gas will mimic the atmospheric distribution of the plume constituents. This is particularly true since the most important classes of chemicals released during the thermal treatment operations are particulate-phase materials. All source sampling will only occur under the atmospheric conditions as described in section 4.3 of the source characterization plan. A video tape will be taken for each thermal treatment operation sampled. The visual record found on the video tape will be utilized to ascertain the physical dimensions of the plume. This information along with the detailed, on-site meteorological and atmospheric concentration data will be utilized to estimate the emission rates from the thermal treatment operations.
- 8 - Based on the short duration of each burn (1 hour), the meteorological conditions were selected based on the assumption that during the burn virtually 100% of the time a portion of the plume is being sampled. All source sampling will only occur under the atmospheric conditions as described in section 4.3 of the source characterization plan. A video tape will be taken for each thermal treatment operation sampled. The visual record found on the video tape will be utilized to ascertain the physical dimensions of the plume. This information along with the detailed, on-site meteorological data will be utilized to estimate the release from the thermal treatment operations.
- 9 - The list of PAHs to be included in the source characterization plan have five or more, fused-benzene rings. These PAHs have been shown to be quantitatively collected by the high-volume air sampler equipped with glass fiber filters. Also, these PAHs are generally the most important from a human health perspective. Finally, since each burn will occur over a short, one hour time period, it is important to collect as large a sample volume as possible to reach analytical detection limits. The high-volume air sampler will collect approximately 5 times the air volume of the PS-1 samplers described in T-013. The additional sampling volume is required for the short duration of the sample collection periods.
- 10 - ENSR proposes to include phenol in the source characterization program utilizing USEPA Method T-08. ENSR has not included naphthalene and pyrene in the present source characterization program, due to the need to utilize PS-1 samplers and the low toxicity of these PAH compounds. Also,

N-nitrosodiphenylamine was not included because the available USEPA Method T-07 is not a provided service by commercial analytical laboratories.

- 11 - ENSR agrees with this comment and has included the revisions in the attached source characterization plan.
- 12 - Atomic absorption spectrometry instruments subject to regular calibration and maintenance allow for the generation of weekly calibration curves for each trace element. Daily calibration samples of known concentrations are run to confirm that the existing calibration curve is still relevant. Significant deviations from the calibration curves during the running of the daily calibration samples would facilitate the need for the generation of new calibration curves.
- 13 - Comment has been addressed in the revisions in the attached source characterization plan.
- 14 - Comment has been addressed in the revisions in the attached source characterization plan.
- 15 - Comment has been addressed in the revisions in the attached source characterization plan.
- 16 - The document provided to USEPA is a source characterization program, not an ambient air monitoring program. As stated in the source characterization program, worst-case sulfur and nitrogen oxides emission rates will be estimated utilizing a materials balance approach. ENSR contacted Mr. Bruce Polkowsky of USEPA OAQPS to discuss the agencies progress concerning a shorter-term SO₂ NAAQS. According to Mr. Polkowsky, USEPA is just in the very beginning stages of investigating this issue, but does not have sufficient health effects data to recommend a specific standard. To develop a shorter-term SO₂ standard, USEPA must first conduct basic health effects research to support NAAQS development. Thus Mr. Polkowsky advised ENSR that USEPA is a long way (i.e., many years) from the development of a shorter-term SO₂ NAAQS.
- 17 - See ENSR response to comment #9.
- 18 - The VOC sampling method included in the source characterization program is not old technology. This method is a modification of SW-846 Method 0030 "Volatile Organic Sampling Train (VOST)" which is recommended by USEPA for the

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sampling of trace quantities of VOC in combustion stacks. This sampling method has been adapted by ENSR for use in ambient air monitoring programs for VOC. By maintaining proper sampling flow rates and by utilizing the tandem VOST sorbent tubes required in Method 0030, breakthrough for the target parameters (aromatic hydrocarbons) is negligible. ENSR recently conducted a six-month ambient air monitoring program for aromatic hydrocarbons utilizing this method and achieved an overall system precision (includes sampling and analysis) of $\pm 6\%$. Thus the proposed VOC sampling method is relevant for the present application. Per ENSR's discussions with USEPA Region VI personnel, we will spike all VOST tubes with a surrogate to determine overall recoveries from the sampling system.

Please contact me at 201-560-7323, if you have any questions related to the above.
Thank you.

Sincerely,
ENSR Consulting and Engineering



Ronald Harkov, Ph.D.
Senior Air Quality Scientist

cc. L. Longshore
R. Crain
M. Greenberg
M. Dennis
M. Young

ENSR Doc. No. 3246-001-200,B1,D2

ATTACHMENT 5

SOIL MONITORING PLAN



ViroGroup, Inc.
Suite 1
417 S. Buncombe Road
Greer, SC 29650
Phone 803-879-3900
FAX 803-879-0111

July 15, 1993

Ms. Selma Jenkins-Anthony
Louisiana Department of Environmental Quality
Hazardous Waste Division
7290 Bluebonnet - H.B. Garlock Building, 5th Floor
Baton Rouge, Louisiana 70810

Mr. Rafael Casanova
United States Environmental Protection Agency
Hazardous Waste Management Division
RCRA Permits Branch (6H-P)
1445 Ross Avenue
Dallas, Texas 75202-2733

Re: Soil Monitoring Plan
R & D Fabricating and Manufacturing, Inc.
Colfax, Louisiana
EPA ID# LAD981055791

Ms. Jenkins-Anthony and Mr. Casanova:

On behalf of R & D Fabricating and Manufacturing, Inc., I am submitting to each of you, two copies of the revised facility Soil Monitoring Plan. I have also enclosed a diskette which has the narrative portion of the plan in a file marked SMP.R&D.

The original Soil Monitoring Plan has been updated to provide additional information on data management and quality control, both field and laboratory. Also, additional sampling locations have been incorporated into the plan to allow statistical evaluation of the data.

Please contact me at (803) 879-3900 if I can assist in your review. Thank you for your continued cooperation on this project.

Sincerely,

ViroGroup, Inc. - ETE Division

Robert J. Hall, P.E.
Regional Manager

Enclosures

cc: Jim Gallion
Lin Longshore

SOIL MONITORING PLAN

**LIDLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT), INC.
(FORMERLY R & D FABRICATING AND MANUFACTURING, INC.)**

COLFAX, LOUISIANA

LAD981055791

(Revised) July 1993

Prepared by:

**ViroGroup, Inc. - ETE Division
Greer, South Carolina
(803) 879-3900**

STATEMENT OF CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."



Authorized Signature JIM GALLION

07/16/93

Date

FACILITY MANAGER, LAIDLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT), INC.
Title

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EXHIBIT I - WIND ROSE

FIGURE I - SOIL SAMPLING LOCATIONS

APPENDIX A - USATHAMA METHOD FOR ANALYZING TEN EXPLOSIVES BY
HIGH PERFORMANCE LIQUID CHROMATOGRAPHY

APPENDIX B - SITE HEALTH AND SAFETY PLAN

1.0 INTRODUCTION

On March 31, 1993 the Environmental Protection Agency (EPA) issued a RCRA Subpart X and HSWA Permit to R & D Fabricating and Manufacturing, Inc. for the operation of thermal treatment units. The treatment permit was issued subsequent to issuance of a storage permit by the Louisiana Department of Environmental Quality (LDEQ) regulating onsite storage of reactive waste. The full RCRA permit was developed under a joint permitting agreement between the EPA and the LDEQ.

Attachment 15 of the permit contains a Soil Monitoring Plan which addresses how R & D will monitor surface soil in the vicinity of the burner units. Since the permit was drafted, the location of the burn units has been changed slightly to take advantage of better topographic conditions and to better centralize the burn units within the property boundary. In addition, Permit Condition IV.C.7.a) requires that the current monitoring plan be modified to incorporate additional information found in Permit Conditions IV.T.2.(f)-(j) and IV.T.3.(f)-(j).

This revised monitoring plan addresses the additional information requirements and updates the existing plan to reflect actual conditions. The data generated from implementation of this plan can be used to supplement the ongoing environmental assessment over the initial operating period of the facility. This plan is intended to monitor the proposed burn area and will not address the existing burn area, which will be evaluated during closure.

In July 1993, R & D was acquired by Laidlaw Environmental Services (Thermal Treatment), Inc. The new company name is noted on the certification and title page, however; R & D Fabricating and Manufacturing, Inc. is used throughout this document to preserve continuity with the previously submitted Soil Monitoring Plan.

2.0 SAMPLING PROTOCOL

The sampling protocol has been developed to address possible contamination down-wind from the proposed open burning area as a result of particulate fallout. Analytical parameters include metals and organic compounds which may be present in the waste. The ongoing environmental assessment will address this situation through air quality modeling, thus providing an early indication of any potential problems. This sampling protocol is based upon waste constituent data, information already obtained through the trial burn process, and Agency concerns over deposition of heavy metals.

2.1 Constituents of Concern

The Final Technical Support Document for the R & D Thermal Treatment System (ENSR 1991) contains a thorough description of the trial burn and soil sampling results associated with operation of the existing thermal treatment units. Soil samples, including background samples, were collected around the perimeter of the existing burners and were analyzed for extractable explosives as well as Appendix VIII organics and metals. Results showed low levels of HMX and RDX. Also, above background concentrations of eight (8) metals were detected and these metals are considered to be the constituents of greatest concern.

Based upon these results and the constituents in the waste streams handled at the facility, soil samples will be analyzed for the following constituents utilizing the listed method or other approved method:

CONSTITUENT	METHOD
Volatile Organic Compounds	SW-846, 8240
Extractable Explosives (10)	USATHAMA (See App. A)
<u>Total Metals</u>	<u>SW-846 Methods</u>
Arsenic	6010, 7060, 7061
Barium	6010, 7080, 7081

Cadmium	6010, 7130, 7131
Chromium	6010, 7190, 7191
Lead	6010, 7420, 7421
Mercury	7470, 7471
Selenium	6010, 7740, 7741
Silver	6010, 7760, 7761

2.2 Sample Locations and Collection Frequency

The optimum locations for the sampling areas were determined from surface wind direction data compiled at England Air Force Base in Alexandria, Louisiana, a location approximately 15 miles southeast of the R & D facility. Exhibit I contains a wind rose generated from the wind data that was collected from January 1975 through January 1984. The predominate wind directions are from the north during the winter months and south during the summer. The southerly winds predominate and, therefore, emphasis was placed on sample locations to the north of the burner pad.

Figure I shows a total of 12 sample locations which will be used in the soil monitoring plan. Locations 1, 2 and 3 are background samples located in the extreme western portion of the property at 100 foot intervals. The minimal frequency of occurrence of winds from the east-northeast and the distance from the burn area makes this an ideal location for background samples. Locations 4, 5 and 6 are located south of the burn area and are approximately 1000 feet apart. Six sample locations (#7 - #12) have been placed north of the pad in a grid pattern approximately 600 feet apart. These locations will provide good coverage for monitoring of soil in the directions of prevailing winds with regard to the burn area.

Prior to operation of the proposed units, R & D will collect surface samples from all even numbered sample locations noted on Figure I. These samples will be analyzed for the constituents noted in Section 2.1 and the data will be utilized in the development of a background data set for each constituent.

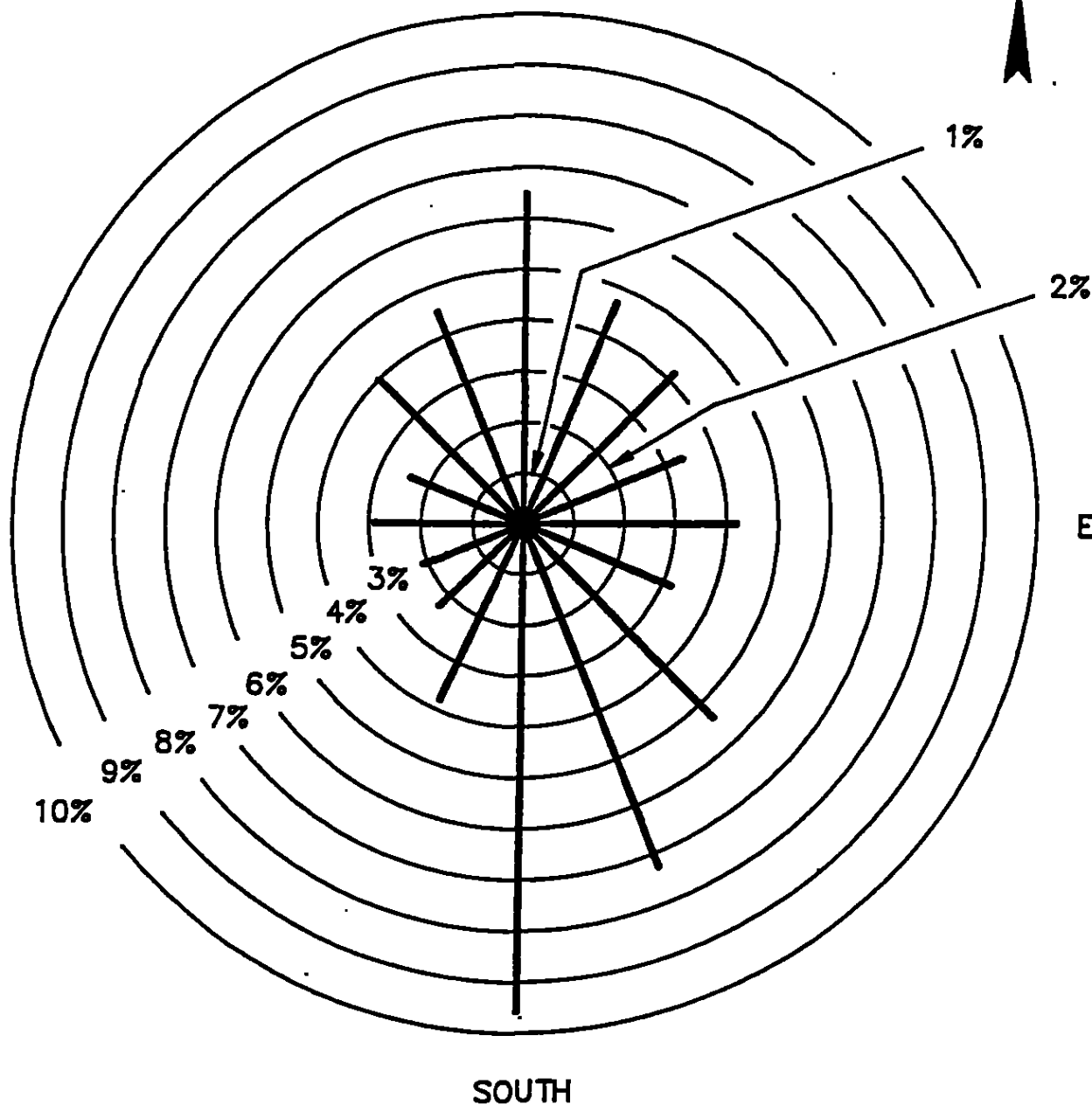
CALMS: 29.7%

NORTH



WEST

EAST



SOURCE: GLOBAL CLIMATOLOGY BRANCH,
USAFETAG, AIR WEATHER SERVICE/MAC
ENGLAND AIR FORCE BASE
PERIOD: JAN '78 - JAN '84

PERCENTAGE FREQUENCY
OF WIND DIRECTION



Environmental Technology Engineering, Inc.

SCALE AS SHOWN

DRAWN BY GAH

CHECKED BY RJH

DATE 12-15-89

WIND ROSE

EXHIBIT I

PROJECT NO.

After one (1) year of operation of the proposed burner units, soil samples will be collected from all locations and analyzed for the constituents outlined in Section 2.1. Background data from samples 1, 2 and 3 will be combined with the previous data in order to create a complete background data set for each constituent. Data will be analyzed as discussed in Section 4.1 in order to determine if there is a statistically significant difference between background and burn area concentrations of contaminants. If analytical results indicate that a significant difference exists, the Louisiana Department of Environmental Quality (LDEQ) and the Environmental Protection Agency (EPA) will be notified. A plan to address these results will be developed at that time. If no significant increase is noted, the sampling frequency will be extended to two (2) years.

Surface soil samples will be collected directly from the surface sediments using decontaminated stainless steel spoons or a gloved hand to place the sample into the sample container. Sampling personnel shall wear a separate pair of disposable latex gloves for each sample collected. Sample containers will be prepared by the receiving laboratory and will be used as received from them.

3.0 DATA COLLECTION QUALITY ASSURANCE

For all measurement parameters which have analytical QA objectives listed in the most current EPA or USATHAMA Method, those objectives will be used. Where alternative methods may be used by the contract laboratory, those methods and the QA objectives must meet or exceed standards contained in the EPA or USATHAMA method specified in Section 2.1. Systematic checks utilized by the laboratory will ensure data reliability.

The following information defines quality assurance activities in regard to the following:

- ▶ Strategy - Data Usage and Accuracy
- ▶ Sampling and Field Measurements
- ▶ Sample Analysis

3.1 Quality Assurance Strategy

The data collected from soil sampling and analyses will be used to determine if the thermal treatment units are impacting surface soil within the facility property boundary. If it is determined that surface soil is being impacted, measures can be taken to alleviate or minimize this impact.

The background and burn area analytical results will be analyzed statistically as discussed in Section 4.1. Analytical results for metals will be reported in ppm and for organics, ppb. These levels of detection will allow evaluation of data to determine if a significant difference exists between the background and burn area means.

3.1.1 Data Precision and Accuracy

The terms used in this section which characterize data measurement reliability are defined below:

Accuracy - the degree of agreement of a measurement (or an average of measurements of the same thing) X with an accepted reference or true value, $100 (X-T)/T$, and sometimes expressed as the ratio X/T . Accuracy is a measure of the bias in a system.

Precision - a measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation. Various measures of precision exist depending upon the "prescribed similar conditions."

Completeness - a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under correct normal conditions.

Representativeness - expresses the degree to which data accurately and precisely represent

a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition.

Comparability - expresses the confidence with which one data set can be compared to another.

The precision, or degree of agreement between measurements, is determined by the standard deviation of a single measurement from the mean of the data set. Duplicates of the same sample will be analyzed by the laboratory as a routine precision check. In addition, one duplicate sample per sampling event, selected at random, will be analyzed as a check on sampling and analytical technique.

The accuracy of a sample measurement is reported as percent spike recovery which represents the percentage recovery of a known quantity of compound which is added to the original sample and subsequently analyzed. The methods used in sample analyses will contain quality control audit standards, including sample spiking, to be implemented to ensure data reliability.

3.1.2 Quality Assurance Reports

The contract laboratory will prepare quality assurance documentation for all samples analyzed for each sampling event and will make this documentation available to R & D upon request. The level of detail will be sufficient to document all quality assurance activities specified by the method and shall include but not be limited to:

- Periodic assessment of measurement data accuracy, precision, and completeness;
- Results of performance audits;
- Results of systems audits; and,
- Significant quality assurance problems and resolutions.

A summary of this documentation will be supplied to R & D to be maintained in the data record. Summary information shall include, but not be limited to, percent spike recoveries and the analytical results for duplicate samples.

3.2 Sampling and Field Measurements

Sections 2.0 and 4.0 discuss sample locations, frequency and statistical analysis to be conducted, including rationale for sample locations. The constituents of concern, analytical methods and measures to prevent cross contamination are also addressed. Additional procedures regarding handling of samples are discussed below.

All sample bottle preparation, sample preservation, and maximum holding times shall conform to the procedures described in the analytical method. Sample containers will be prepared by the contract laboratory and will be used as received. The contract laboratory will be responsible for disposing of all samples in accordance with Local, State and Federal regulations.

Sample custody will be documented and maintained for all phases of sampling operations carried out at the facility. The following sections discuss both field and laboratory procedures which will be carried out to ensure the integrity of the sampling effort.

3.2.1 Sample Identification

All samples will be tagged with an identification label which shall be attached directly to the container. At a minimum, the following information will be placed on the label with a waterproof pen.

- Name of Sampling Organization
- Sample Identification Number
- Date

- Time
- Sample Type (i.e., grab, composite)
- Sampling Personnel
- Matrix (May be described by the sample ID #)
- Special Instructions or Precautions

As each sample is collected, a record will be made in the field notebook which further identifies the sample. All samples will be placed in containers and taken to a central staging area where they will be checked and recorded on a chain-of-custody form as described in the following section.

3.2.2 Chain-of Custody Procedures

Chain-of-custody procedures provide documentation of the handling of each sample from the time it is collected until it is destroyed. To maintain a record of sample collection, transfer between personnel, shipment, and receipt and handling by the laboratory, a "Chain-of-Custody Record" will be included with each sample shipment. This document will record pertinent information about each sample included in that shipment. Each time the samples are transferred to another custodian, signatures of the person relinquishing the sample and receiving the sample, as well as the time and date, will document the transfer.

Chain-of-Custody records will have each sample identified with the station number, date and time of collection, matrix, number of containers per station, and analytical constituents. Field forms will include copies so that one copy may be retained while the original and at least one copy are shipped with the samples. The facility manager will retain a copy of the Chain-of-Custody record and keep it in the data record for inspection. If samples are split to different labs, a copy will go to each lab. If additional sheets are required, the person relinquishing the samples is responsible for filling out additional copies, or making reproductions.

The Chain-of-Custody Record will be placed in a protective cover and placed inside the shipping container. All samples will be shipped by the most expedient method to the specified laboratory. Samples will be packed so that no breakage occurs and the shipping container sealed with evidence tape so that any sign of tampering is easily visible.

3.3 Sample Analysis

Chain-of-custody, sample preparation, holding times and analytical procedures have been addressed previously. Additional information regarding sample analysis is provided below.

3.3.1 Instrument Calibration

Each analytical instrument will be calibrated in a manner consistent with EPA calibration protocols and/or the contract laboratory's standard practice. Calibration documentation will be documented in a notebook maintained by the laboratory.

3.3.2 Data Reduction, Validation and Reporting

Data transfer and reduction are essential functions in summarizing information to support conclusions. It is essential that these processes are performed accurately and, in the case of data reduction, accepted statistical techniques are used.

At a minimum, example calculations must be included with the summarized data to facilitate review. The entry of input data and calculations should be checked and the signature or initials of the data technician and reviewer(s) should accompany all data transfers with and without reduction.

Data input and output sheets will be used by the contract laboratory in order to keep track of data. These forms will record all information pertinent to the analytical procedure such as standard curves, QC data, and final results.

For routine analyses, sample response data information will be used to calculate the following as applicable:

1. Quadratic regression line for standards,
2. Coefficient of variation for replicates,
3. Spiked recoveries,
4. Reference sample concentrations, and
5. Sample concentrations.

QC criteria for acceptance will be derived from EPA or the contract laboratory's QC program. The QC criteria will be stored in a data management file for easy retrieval.

If the samples in a sample lot do not pass all the QC checks then the results reported in all samples processed in the same sample set must be considered as suspect and the analyses may need to be repeated. The Laboratory QA Officer will be notified and the necessary corrective action implemented.

The completed batch forms will be stored in files arranged for easy retrieval. Strip charts, copies of parameter notebooks, and QC charts will be stored for each constituent in a project notebook.

The contract laboratory manager will validate a portion of all preliminary data by field group. Example tasks which may be included in the validation review are listed in the following checklist:

1. Were holding times met for each sample?
2. Were samples analyzed using the methods specified in the QA plan?

3. Was a blank run for each batch and properly subtracted from sample?
4. Were the required number of standards and spiked samples analyzed with each batch?
5. Was the correlation coefficient of the calibration curve > 0.995?
6. Were spike recoveries within the acceptance criteria stated in the QA Plan?
7. Randomly select one value/batch and trace back through the calculations to the raw data. Do the numbers agree?

3.3.3 Internal Quality Control Checks

The laboratory contracted by R & D will adhere to a strict internal quality control program to assure data quality. Internal quality assurance procedures are designed to assure the consistency and continuity of data. Internal quality assurance procedures include:

- Instrument performance checks
- Instrument calibration
- Documentation on the traceability of instrument standards, samples, and data
- Documentation on analytical and quality control methodology
- Documentation on sample preservation and transportation

Standard analytical quality control will include, but is not limited to:

- Duplicate Samples

At selected stations on a random time frame, duplicate grab samples are collected. This provides a check of sampling technique and precision.

- Split Samples

A representative subsample from the collected sample is removed and both are analyzed for the pollutants of interest. The samples may be reanalyzed or analyzed by two different laboratories for a check of the analytical procedures.

- Spiked Samples

Known amounts of a particular constituent are added to an actual sample or to blanks in concentrations at which the accuracy of the test method is satisfactory. This method provides a proficiency check for the accuracy of the analytical procedures.

If the method allows, one to six compounds with characteristics similar to those being analyzed will be added to every sample prior to extraction. The percent recovery of these compounds is indicative of the efficiency of the analysis at recovering the sample compounds. A sample recovery within the range specified by EPA will be deemed sufficient.

Standards will also be run daily to ensure that numerical data reflects the current sensitivity of the instrument. Prior to any GC/MS analyses, the instrument will be tuned to meet particular specifications.

3.4 System Audits

Two types of audit procedures will be used by the contract laboratory to assess and document performance of project staff--system audits and performance audits. These are performed at frequent intervals under the direction of the Laboratory QA Supervisor.

These audits form one of the bases for corrective action requirements and constitute a permanent record of the conformance of measurement systems to QA requirements.

System audits are inspections of training status, records, QC data, calibrations, and conformance to Standard Operating Procedures without the analysis of check samples. System audits will be performed periodically on laboratory and office operations.

The systems audit protocol is summarized as follows:

1. Laboratory Operations--The Laboratory QA Supervisor will check:

- a. Parameter and/or laboratory notebooks;
- b. Instrument logbooks;
- c. Sample log-in, dispensing, and labeling for analysis;
- d. Updating of QC charts of the spikes; and
- e. Final approval of data from each sample lot.

In addition, the Laboratory QA Supervisor will monitor all experiments to assure complete adherence to approved analytical methods.

2. Final Reports--The Laboratory QA Supervisor will review all final reports and deliverables.

Performance test sample programs administered by various government agencies are also used as a basis for the Laboratory QA Supervisor's performance audit.

4.0 DATA MANAGEMENT

R & D will implement these data management procedures in order to document and track analytical data. These procedures address the data record, the data presentation format, and project file requirements.

All laboratory data will be summarized in tabular form for each sampling event. For each constituent, the sample identification code and concentration at each location will be noted. Any concentrations recorded as less than the detectable limit will have the lower detectable limit numerical value shown (i.e., < 0.1 mg/kg). The lower detectable limit will be established with the laboratory prior to analyzing the first set of samples and will be in accordance with the method used, subject to possible interferences.

For each constituent, the background data set and the burn area data set generated after one year of operation will be analyzed to determine the arithmetic mean and variance for each. The means for each data set will be compared using the Cochran's Approximation to the Behrens-Fisher Students' t-test as outlined in 40 CFR Part 264, Appendix IV. A one-tail test using a standard t-table at a 0.025 level of significance will be used to compute the critical t value. Values recorded as less than the lower detectable limit numerical value will have that value applied in the statistical analysis.

A data summary showing the t-statistics for each constituent will be prepared in tabular form and maintained in the data record. If a constituent concentration is recorded as less than detectable for all sample locations, it will not be included in the statistical analysis summary table.

In the event that the burn area data set mean exceeds the background mean, additional methods of presenting the data may be used to further assess the data sets. These methods may include graphs showing constituent concentrations at a particular sample location over time or isopleth plots.

4.2 Data Files Maintenance

The analytical laboratory contracted by R & D will maintain data generated from soil analyses in a manner consistent with the particular laboratory's standard practice. Hard copies of the analytical data will be provided to R & D to be placed in the data record. As

4.1 Data Record and Presentation

A data record will be maintained at the facility which contains chain of custody records, analytical results received from the outside laboratory, a statistical evaluation of the data, and a summary presentation of the data in tabular form. This information will be maintained as a distinct unit for each sampling event.

Data received from the laboratory will be required to contain the following information:

- A unique sample identification code which includes the sample location.
- Sampling personnel and date of collection.
- The constituent being analyzed and unit of measure.
- Analytical results with the minimum detection limit.

The sample identification code used for soil samples will identify the matrix, specific location, month and the year as shown in the following example for location 9.

S09-0693

S = soil

09 = location 9

06 = June

93 = 1993

Duplicate samples or additional samples at the same location during each sampling event will have an additional designation as shown:

S09-0693A, S09-0693B, etc.

This unique sample identification code will be used to identify a particular sample on all presentations of the data.

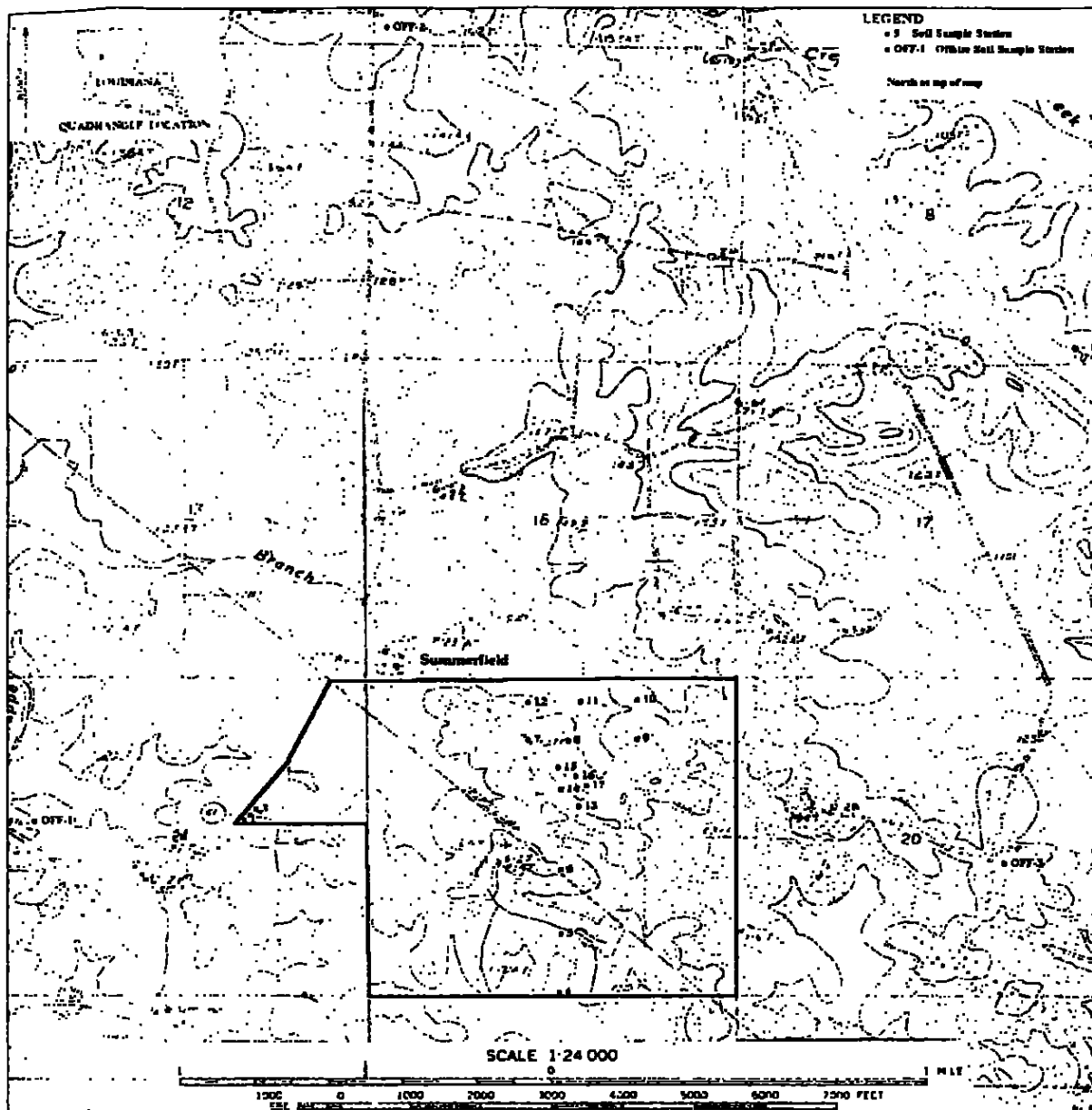
to ensure that soil monitoring is implemented at the facility in accordance with this plan. Mr. Crain has been the operations manager at R & D since its inception and is thoroughly familiar with the operation. He has significant experience in handling explosive and reactive waste; environmental affairs; and management.

R & D will employ an outside contractor(s) for sampling and analytical work. These contractors will report directly to the facility manager and operations manager.

6.2 Scheduling

An outside contractor(s) for soil sampling and analysis will be secured at least 30 days prior to initial treatment of waste in the proposed burn units. Prior to initiating thermal treatment, the first round of soil samples will be collected as described in Section 2.0. It is anticipated that samples can be collected in a single day and that analysis can be completed within 45 days. An additional 45 days will be used to develop data tables, evaluate the data statistically and prepare a data summary or other necessary documentation.

After one year of operation, the first complete set of samples will be collected with analytical and data analyses completed within an additional 90 days. Raw data tables will be placed in the operating record for the year that samples were collected. Any reports generated as a result of discrepancies in the background and burn area data sets will be submitted to the LDEQ or the EPA within 30 days after data analyses is complete.



SAMPLE POINT	LATITUDE (DEG MIN SEC)	LONGITUDE (DEG MIN SEC)	SAMPLE POINT	LATITUDE (DEG MIN SEC)	LONGITUDE (DEG MIN SEC)
# 4	31 33 49	92 42 46	# 12	31 33 36	92 42 51
# 5	31 33 59	92 42 46	# 13	31 34 20	92 42 43
# 6	31 34 09	92 42 46	# 14	31 34 22	92 42 46
# 7	31 34 30	92 42 51	# 15	31 34 28	92 42 46
# 8	31 34 30	92 42 45	# 16	31 34 26	92 42 45
# 9	31 34 31	92 42 33	# 17	31 34 25	92 42 43
# 10	31 34 38	92 42 33			
# 11	31 34 37	92 42 44			

FIGURE 1

SOIL SAMPLE STATION LOCATIONS
LAIDLAW ENVIRONMENTAL SERVICES (THERMAL TREATMENT), INC.
COLFAX, LOUISIANA



5637 Superior Drive Suite B-1 Baton Rouge, LA 70816

File Name: datafile1\soilstationloc
Project Number:

Date: 9/11/96
Source: Survey, Steve Grasslman
TAM: USGS topo Colfax, LA, 1983

ATTACHMENT 6

WATER WELL ANALYTICAL DATA

DATE: 03/19/97

PAGE 1

LOCAL WELL NUMBER	SITE-ID	WATER- LEVEL DATE	WATER LEVEL (FEET)	DATE DISCHARGE MEASURED	DISCHARGE (GPM)	DRAWDOWN (FEET)	PUMPING WATER LEVEL (FEET)	STATIC WATER LEVEL (FEET)	PUMPING PERIOD (HOURS)
G- 62	31343209244201	07-01-39	15.00	--	--	--	--	--	--
G- 63	313404092440301	07-01-39	30.00	--	--	--	--	--	--
G- 98	313307092425002	--	--	--	--	--	--	--	--
G- 233	313407092440101	--	--	--	--	--	--	--	--
G- 234	313355092414301	--	--	--	--	--	--	--	--
G- 247	313411092442501	--	--	--	--	--	--	--	--
G- 260	313407092435401	--	--	--	--	--	--	--	--
G- 291	313435092442001	05-29-71	5.00	- -65	20.00	--	--	--	--
G- 321	313618092432101	-56	36.00	--	--	--	--	--	--
G- 392	313452092431701	10-04-73	7.00	05-29-76	150.00	--	--	--	--
G- 393	313417092434601	10-03-73	33.00	05-19-76	150.00	--	--	--	--

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY
 MULTIPLE STATION ANALYSES

PROCESS DATE 3-19-97

LOCAL IDENT- IFIER	DATE	TEMPER- ATURE WATER (DEG C) (00010)	AGENCY ANAL- YZING SAMPLE (CODE NUMBER) (00028)	COLOR (PLAT- NUM- COBALT UNITS) (00080)	SPR- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	ALKA- LINITY WAT WH TOT FEI FIELD MG/L AS CAO3 (00410)	BICAR- BONATE WATER WB FEI FIELD MG/L AS HCO3 (00410)	CAR- BONATE WATER WE FEI FIELD MG/L AS CO3 (00415)
GRANT PARISH										
G- 62	07-07-39	--	--	--	--	--	--	449	550	--
G- 98	02-04-44	--	--	--	287	7.8	6.7	217	220	24
G- 233	09-06-44	--	--	--	--	6.8	64	206	250	--
G- 234	11-08-68	--	--	5	270	5.9	54	22	27	0
G- 247	11-08-68	--	--	--	--	--	--	--	--	--
G- 260	11-20-68	--	--	--	--	--	--	--	--	--
G- 291	04-23-69	21.5	--	10	461	6.5	64	104	130	0
G- 321	04-29-71	--	--	5	772	--	--	236	290	0
	09-24-71	--	--	--	--	--	--	--	--	--
	10-27-71	--	--	0	414	5.2	--	--	9	0
	04-05-72	--	--	--	--	--	--	--	--	--
G- 392	10-09-73	--	9801	0	--	6.6	80	42	51	0
	10-12-73	--	9801	2	98	5.9	70	28	34	0
G- 393	10-05-73	--	9801	10	--	6.3	65	66	81	0
	10-12-73	--	9801	2	438	6.5	41	66	80	0

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY
MULTIPLE STATION ANALYSES

PROCESS DATE 3-19-97

LOCAL IDENT- FIER	DATE	RESIDUE	NITRO-	HARD- NESS TOTAL (MG/L AS CaCO3) (00900)	HARD- NESS NONCARB TOT FLD MG/L AS CaCO3) (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	SODIUM PERCENT (00932)
		AT 103 DEG. C, DIS- SOLVED (MG/L) (00515)	GEN, NITRATE DIS- SOLVED (MG/L AS N) (00618)							
G- 62	07-07-39	--	12.0	--	--	--	--	--	--	--
G- 98	02-04-44	--	0.270	110	0	--	--	--	--	--
	09-06-44	--	0.100	98	0	--	--	--	--	--
G- 233	11-08-68	--	10.0	65	43	20	3.7	25	1	45
G- 234	11-08-68	--	--	16	--	--	--	--	--	--
G- 247	11-20-68	--	--	110	--	--	--	--	--	--
G- 260	04-23-69	--	--	81	0	26	3.9	62	3	62
G- 291	04-29-71	--	0.023	280	44	75	23	53	1	29
G- 321	09-24-71	--	--	82	--	--	--	--	--	--
	10-27-71	--	28.9	80	73	19	7.9	44	2	53
G- 392	04-05-72	--	28.0	--	--	--	--	--	--	--
	10-09-73	85	--	12	0	2.4	1.5	21	3	--
	10-12-73	98	--	5	0	1.2	0.40	25	5	--
G- 393	10-05-73	280	--	100	36	25	9.5	81	3	--
	10-12-73	287	--	82	16	18	9.0	68	3	--

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY
 MULTIPLE STATION ANALYSES

PROCESS DATE 3-19-87

LOCAL IDENT- IFIER	DATE	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
GRANT PARISH										
G- 62	07-07-39	--	35	72	0.80	--	--	--	--	--
G- 98	02-04-44	--	610	75	--	--	--	150	--	--
G- 233	09-06-44	--	620	100	--	--	--	100	--	--
G- 234	11-08-68	0.50	29	20	0.10	46	--	--	250	--
	11-08-68	--	150	--	--	--	--	--	--	--
G- 247	11-20-68	--	98	--	--	--	--	--	--	--
G- 260	04-23-69	1.1	70	18	0.10	44	--	--	260	50
G- 291	04-29-71	1.4	94	26	0.20	36	--	--	678	90
G- 321	09-24-71	--	48	--	--	--	--	--	50	--
	10-27-71	4.2	46	0.20	0.0	28	--	--	60	30
	04-03-72	--	--	--	--	--	--	--	--	--
G- 392	10-09-73	--	15	<1.0	0.23	41	ND	--	300	<10
	10-12-73	--	20	1.6	0.10	16	--	--	100	20
G- 393	10-03-73	--	84	17	0.20	45	ND	--	100	<10
	10-12-73	--	86	36	0.10	20	--	--	100	20

UNITED STATES DEPARTMENT OF INTERIOR - GEOLOGICAL SURVEY
MULTIPLE STATION ANALYSES

PROCESS DATE 3-19-97

LOCAL IDENT- I- FILE	DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTIT- UENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS) PER AC-FT (70303)	NITRO- GEN, NITRATE TOTAL (MG/L) AS NO3 (71850)	NITRO- GEN, NITRATE TOTAL (MG/L) AS NO3 (71851)	HYDRO- GEN SULFIDE TOTAL (MG/L) AS H2S (71875)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)	DEPTH OF WELL, TOTAL (FEET) (72008)
GRANT PARISH									
G- 62	07-07-39	--	--	--	52	--	--	97.0	25.00
G- 98	02-04-44	--	--	--	1.2	--	--	146	225.00
G- 233	09-06-44	--	--	--	0.80	--	--	146	225.00
G- 234	11-08-68	208	202	0.28	46	--	--	120	90.00
	11-08-68	--	--	--	--	--	--	160	260.00
G- 247	11-20-68	--	--	--	--	--	--	105	100.00
G- 260	04-23-69	308	288	0.42	0.90	--	0	120	70.00
G- 291	04-29-71	435	451	0.59	0.10	--	--	90.0	60.00
G- 321	09-24-71	--	--	--	--	--	--	150	47.00
	10-27-71	339	282	0.46	130	--	--	150	47.00
	04-05-72	--	--	--	120	--	--	350	47.00
G- 392	10-09-73	--	108	--	--	--	--	110	45.00
	10-12-73	--	61	--	0.10	--	--	110	45.00
G- 393	10-05-73	--	382	--	--	--	--	122	75.00
	10-12-73	--	277	--	0.10	--	--	122	75.00